The Builder.

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Notes in the International Picture Galleries.

THE place of honour in the gallery devoted to the works of living English artists, both as regards size of canvas and central position, is held this year by Mr. Burchett's painting of a supposed (and very probable) scene during "The Making of the New Forest" (662), which would certainly have a claim to its position if the conception and execution were as forcible as the actions represented. It needs the genius of a Gérome to render scenes of violence and bloodshed subservient to some of the highest ends of art. Nevertheless this work is creditable to Mr. Burchett. Of smaller figure-pictures, chiefly *genre*, may be noted here Mrs. Jopling's (late Romer) small study of "A Mother and Child" (500), as a clever and agreeable bit of work, slightly but conscientiously painted; E. Roberts's "Early Tuition" (506), much reminding us of the manner of Rankley; J. Clark's "First Letter" (548), written by a small scribe under the guidance of an elder sister; Miss Turck's "Lady Teazle" (608), in her unmarried days, sitting over the tambour-frame so contemptuously referred to by Sir Peter, a figure which realises the character very well; and J. Morgan's two contributions, "School's Over" and "Toddles" (569 and 628), the former of which is a work of more elaboration and importance than the others mentioned: the picture has fun in it, but scarcely humour, the artist has caught rather the outer manner than the character and nature of the schoolboy at play; but it attracts spectators, and is composed and studied with care. In a very different way the scene from the "Taming of the Shrew" (534) by H. C. Selous, is interesting, as happily hitting the manner of Petruchio and Katharine at the moment when the lady comes (in the last scene) in obedience to her husband's orders: the quiet assertion of supremacy in the latter, and the dignified submission of the lady, are very well given; the composition emphasises the leading figures well. Ludovici's large picture, illustrated by, or illustrating, a verse of Shelley (686), is an ill-judged and prosaic attempt to allegorise in painting the poetic metaphor embodied in the words, "The fountains mingle with the river," &c. The result is only to utterly vulgarise a fine idea: pity that an artist who has shown considerable ability in the execution of this and sundry other works of a similar type should bestow his labour on things which none but a very weakly sentimental or theatrically-minded person would care to possess. The portrait of "Thomas Thornycroft, esq." (527), by Miss Alyce Thornycroft, is a half-length of considerable character and individuality, and painted in a broad and effective manner: the sculptor appears to be lecturing, and holds in one hand a small statuette in green marble; a greyish coat gives the prevailing tone. Among a few foreign works interspersed here, a small one by Palavin (Russian), the interior of a fisherman's cottage (543), is worth notice for a good effect of light, character in the principal figure, and careful finish of accessories.

Among landscapes in the English gallery are some very pleasant little bits. A contribution from Scotland, by J. Cassie, A.R.S.A., "Mouth of the River Tay" (501), shows that its author sees with his own eyes, and can find poetry in a flat brown beach, with two big guns and a signal-staff, and a lighthouse on a distant reach of land. F. Cox's little bit "On the Thames," with its quaint high wooden bridge (493), and Farrer's "Sun setting in a Fog, London Bridge" (518), are both good little things, the latter the most original, though rather hard. "Daybreak," by G. Prendergast (611), gives most truthfully and feelingly the effect of the grey of early dawn glimmering on a barge and two swans on a river, and just cutting out from the sky the rather misty outline of houses above the opposite bank. Barclay's "Autumn Moonlight on the Tay" (609) is good, and H. Moore's small work, "Coast of North Wales,—Cattle basking on the Beach" (637), serves to show what a genuine artist can make out of sandhills and cows, discreetly handled. It is an admirable little work. A. Clint's "Lock at Wallingford" (845) is a small canal scene of great freshness and truth of tone, to some extent recalling the feeling of Constable. The water-colours on screens in the English Gallery do not call for much remark. There are some good architectural subjects among them. A small drawing of St. Paul's by R. K. Thomas (742), W. Richardson's "Poets' Corner" (774), Dobbin's "Burgos Cathedral" (784), and a fine drawing by J. Chase of the interior of Antwerp Cathedral. Several drawings of the same class by T. C. Dibdin are good in regard to execution and finish, but all fail artistically from a want of definite point in the light and colour composition. They are too "all-overish," so to speak. Mr. Spiers exhibits some of his well-known drawings. Among a miscellany of not very interesting productions, two small drawings, by C. Milliard, "Near Festiniog," and "Mountain Torrent" (801-3), commend themselves as original; as also "Showery Weather," by E. Bernard (758); "Niton Beach, Isle of Wight," by Miss A. White (843); and two or three others.

The Bavarian Gallery (Room X.) has its large central picture also, Professor Wagner's "Roman Chariot Race in Time of the Emperor Domitian" (1,224), which seems to be an attraction to visitors, as well, perhaps, on account of a certain novelty in the subject, as of the undoubtedly spirited treatment of the composition. The scene is taken near what may be called the "grand stand," in front of which several four-horse chariots (*quadrigæ*) are rounding the small end of the amphitheatre, rushing straight up to the spectator. The foreshortening of the galloping horses is ably achieved, and a sufficient variety given to their action and attitudes; and the almost grotesque energy of the drivers is true to life, and has no classic conventionality about it. Perhaps it would be difficult to define decisively where this work falls short of being wholly satisfactory, as it certainly does; the fault is to be laid a good deal to a hardness and "paintiness" of tone and texture, and also to a want of refinement and truth in detail. Meisel's "Last Meeting between Louis XVI. and his Family" (1,119) has much of pathos, and the composition tells the story well; the jarring note is in the manner in which the white satin dress of the unhappy queen is forced into prominence, in order to gain a strong high light on the right: the result is to remind one of Tilburnia "mad in white satin," besides being, under the circumstances, at variance with probabilities. "An Auction," by Stelzner (1,130), shows a collection of figures of considerable variety, as representing the character of low life; the composition wants concentration as a whole. An original thing, and with much of local character is Mali's "Cattle Market in Swabia during Rainy Weather" (1,083); the architecture most picturesque, the expanse of wet umbrella-tops in the straggling street, with a detachment from the mass struggling up the inn steps, the long rain-spouts projecting two or three yards from the houses with the water blown away in showers from the end of them, constitute a highly characteristic scene, evidently from reality. For character under very different circumstances and people, Holmberg's "Difference of Opinion" (1,090) between certain elderly silk-stockinged figures, over their wine in a luxuriously-furnished room, may be mentioned as a scene of much point and humour, and well worked out both in composition and detail. A half-length by Leibl of a "Peasant Woman and Child" (1,217), a stern-looking woman in black dress and with a round fur cap on her head, should not be passed over; and Kuppelmayr's "Italian Concert" (1,237) is interesting as recalling a favourite kind of composition of the old Venetian painters, a group of half-length figures massed together into one picture and forming by their costumes a study in colour; the colour in this case wants brilliancy, but is fine and harmonious in tone; the treatment is rather flat and fresco-like. A really original little work near this is "Polish Jews at Morning Prayer" (1,232), by Von Kerwin-Milenski; the composition is simple and unaffected; the long robes and dignified aspect of the officiating priests contrast curiously with the bare unceiled garret, apparently lighted from a skylight, in which these Israelite worshippers, reversing the state of things at the rise of Christianity, would seem to have shut themselves for fear of the Christians. There are some good landscapes here, the most ambitious being Neubert's "Sunrise on the Grossglockner" (1,226). The artist has scarcely escaped the danger which such subjects lead to, of portraying colour rather than light on the snowy mountains lighted by the rising sun; but it is a powerful thing, very well attempted, and at least partially successful. The same artist's "Winter Evening" (1,131) is fine, and shows that he is not restricted in his range. Among other works of true feeling in landscape are Heffner's "Evening on the Isar" (1,162); Kappis's "Fishermen on a Foggy Morning" (1,206); "The Pond of a Monastery," by Hellrath (1,222), a fine quiet scene of water and dark trees with the old building as a background. The screens in this gallery are occupied by water colours, chiefly English, among which are small works of interest here and there: two drawings by Jas. Price "Scene in Sussex" and "Common in Kent" (1,303, 1,309) show artistic skill; and there are originality and ability in the two small companion works by Miss Beatrice Meyer (1,335, 1,340), representing phases of city life on its comic and tragic sides, "At the Pit Door" and "A Scene at the West End." Several of Mr. Ernest George's drawings sustain his reputation as an artist-architect.

Coming round to the East Galleries, we find Belgium numerously represented in Room XVI. The treatment of material in interiors, &c., and a general ability in the finish of texture and detail, seem to have become a tradition in this school, and equally so the want of pure light and atmosphere in almost the whole of them, landscape especially: the sunshine seems as if viewed through a dingy medium interposed. The average in regard to figure pictures is, however, higher here than in the West Galleries. The best thing in the room is Slingeneyer's

"Street Scene in Tunis" (1,656), which really is not a "scene," but a three-quarter length of a handsome Algerian woman, draped in a heavy blanket kind of robe, caressing a little copper-coloured lad seated against the wall beside her: the figures are carefully studied in pose, the flesh-tints clear and good; the picture is lighted up by the touches of positive colour in the boy's red cap and the basket of lemons behind. "Italian Woman and Child," by Alexandre (1,521), forms a good contrast in the same class of subject to the last-named, and is very pleasing in colour, composition, and the picturesque form of the cradle introduced. "The Regatta," by Cluysenaar (1,538), is one of a class of subjects in which certain French artists so much excel; a lady in a brown silk dress, her face in shade from the parasol she holds, is seated at an open window watching the yachts; the attitude and pose of the figure, the treatment of the accessories, and the distant glimpse through the window of the hot bright shore and blue water, are equally well given; it is a work quite removed from the commonplace. The same may be said of the two small works by Impens, "Hush!" and "The Picture-book" (1,541, 1,599). "An Italian Window," by E. Smits (1,551), a study of girls arranging flowers in a balcony, has merit in character and composition, though rather muddy in colour. The large work by Soubre, "A Noble Family before the Council of Blood" (1,554), is far from being a bad or inferior painting; but it is so like so many others on similar subjects, that it is impossible to see what was to be gained by painting it. Linnig's "Curiosity Dealer" (1,585), an old original of a collector in the middle of his *bric-à-brac*, examining a picture on his knee, is clever and humorous; here again the want of clearness and purity of colour is the defect. The picture by Hermans, "Lent in the Convent" (1,593), is in its way one of the cleverest things here, especially the figure of the fat brother in the foreground advancing to the table with more good cheer; but it is a somewhat coarse thing, a vulgar rendering of what is probably in great measure a vulgar calumny. The same artist sends another work, equally well executed, and much pleasanter in subject, "The Parents' Sunday Visit" at St. Pierre's Hospital, Brussels: the picture is cold and dead in effect, for no attempt is made to soften away the absolute realism of the bare white-washed walls, but the unaffected and simple feeling of the whole will appeal to the sympathy of many. We can see in this gallery the frightful havoc which English drama and English legend make among the Continental painters; De Vriendt's attempt at an "Othello" (1,604) is absolutely ludicrous; and Van Lerius, who again copes with English legend, is scarcely more successful in his "Cinderella" (1,706). There are humour and nature, and effective grouping, in Gerard's painting of the "Artist in his Studio" (1,637), in the interior of a house in the Black Forest, engaged on a sketch of the old *gross-mutter* of the house, while the host stands behind critically, and the children look on. Another work by Hermans, in quite a different style to the two mentioned, is the "Young Slave waiting for her Mistress," who is going to a masked ball (1,724): a negro girl in a bright buff dress, holding a cloak, &c., and backed by a light-toned striped silk curtain, —a clever study in colour. Markelbach's half-length group, "The Guardian" (1,549), a florid, jolly, old Dutchman, taking care of a pretty, timid girl, who seems anxious to escape, may close the list of figure pictures that are specially worth noting.

There are some good landscapes, marked by that peculiar heavy manner which we have noted as so prevalent. Van Luppen's "After Rain, near Dinant" (1,552), though at first sight anything but attractive, is a picture the result of a good deal of study, and embodying well the phase of Nature which it professes to represent. We meet one or two of those thick heavily-painted landscapes, of which the works of Coosemans are a type; the best is this artist's "Allé de Hêtres—Autumn" (1,574), a powerful study of forest scenery, fine and interesting in its way, though we should hardly in general care to see Nature so much "translated" as here. Bouvier's "Bay of Algiers" (1,583) is a good little coast picture; and Verheyden's "Orchard in the Neighbourhood of Brussels," in the "thick" style before alluded to. Heyman's "Stormy Weather on the Scheldt" (1,601) is a fine thing, the weight and swing of the water very well given, though with a tone and texture that no English sea-painter would dream of. Indeed, "the Scheldt" must be a peculiar river, or its painters libel it much; Durand Brager's painting, "Twilight," on the said river (1,629), makes the water a deep red-brown, not without effect of a kind. De Schampeleer's "Banks of the Amstel—October" (1,640), is a fine thing, and the high light catching the sails of the boat in the middle of the stream is a positive relief, and is almost the only real piece of sunlight in the gallery. Francia's "Old Mill near Ostend" (1,646); Musin's "Island of Walcheren" (1,681); Wust's "Coast of Norway," with a fine dark sea, all have merit and originality in treatment. Bossuet's architectural subjects, "Naples from the Quai de Marinella" (1,676), and "Rome from the Tiber" (1,540), have all the painters' finest characteristics, and seem almost to sparkle; certainly these are an exception to our charge of want of light against the Belgian pictures; and there is a fine architectural painting, by Stroobant (whose works in this kind we have noticed in previous years), "The Castle of Heidelberg" (1,704), remarkably good in the treatment of the tones of the old red and brown masonry, and in effect of light and shadow. In still life, a branch of art in which the Belgians excel, there is little exhibited; but one excellent work may be noticed, Huygen's "Hawthorn and Roses" (1,620), with vases of Venetian glass standing among the flowers and catching the light in a most sparkling manner.

The Smaller Gallery (Room XVII.), devoted to the now great name (in one sense) of "Germany," does not, as we hinted in a previous article, offer anything very remarkable, unless the spectacle of a mass of cotton-wool coming down some rocks, and passing itself off for a waterfall (1,915), be considered so. Von Eckenbreeker's "Street in Constantinople" (1,907) is, however, an exceptionally good architectural scene, in regard especially to the management of the tones in shadow and the brilliant and dazzling brightness of the buildings in full sunlight, of which a glimpse is seen in the background. Burger's "Death of the Stag" (1,935), from the price put on it, seems to claim to be a great work, but can scarcely count as such in the country of Landseer. Gussow's "Autumn Flowers" (1,950) is a really clever thing; two figures (little more than the head and shoulders) of whom an old wizened man, with his back nearly to the spectator, presents flowers to a half-smirking, half-contemptuous woman, of a coarse type of face; the thing is thoroughly original both in motive and execution. "Elegy," by Arnot (1,955), is a poetical little work; the bare side of a hill, down which a single small figure clad in black descends from a little white house, part of which is seen over the brow of the hill; the whole is very suggestive. Not far from this is one of the few first-class things in the galleries, a small picture by Fritz Thaulow, called a "Norwegian Pilot Boat" (1,972): a boat sails up to the foreground on green, transparent, rippling water, put in with the broadest and simplest touches; an old pole sticking out of the water as a bank-mark, one or two distant craft, and a line of yellow sand-hills on the distant shore with sunlight upon them, given with most perfect truth of tone, complete the picture, which has not a superfluous touch, and in tone, atmosphere, and the motion of the boat on the water, is nearly perfect. Gallery XVIII. contains a mixture of Austrian, Danish, and Italian works. A small work, by Offermans, "In the Dutch Dunes" (2,083), recalls Mason a little in style and subject. Vogel's "Dutch Landscape," with houses and mill (2,108), is a very good little bit of the land of dykes, with one strip of bright sea seen over the dyke. One or two of the Danish pictures are characteristic, especially that by Rasmussen, "A Steam Whaler off the Coast of Greenland, Midnight" (2,119), which at first sight seems to be a work in a most eccentric and violent scale of colour, but it bears evidence on examination of being true to the peculiar effect represented, the sun being just on the horizon, and giving most peculiar hues and tones to the water and floating ice. Italy is scantily represented, which one regrets the more as two or three of the contributions are so good. Gilardi's "Game at Morra" (2,141), outside an Italian hostelry, recalls Meisonnier, and is not without some of his excellences. Giuliano's "The Draught" (2,143), represents a number of peasant figures, chiefly young girls, at a well in a rather rocky landscape; there is a bright, cheerful tone in this, and an interest and grace in the groups of figures, which somewhat remind us of Leslie, though with a difference. Trenti's "In the Alley," a little work, showing a broad walk under full and heavy summer trees, with strips of sunlight finding a way through the foliage, and two little figures in the half distance, will bear looking into.

CO-OPERATION AND COMMON SENSE.

CO-OPERATIVE association has made considerable strides since we last took occasion to invite the attention of our readers to the consideration of the subject. It has pushed northward, and eastward, and westward; and, whether it has struck its roots deep into the soil or not, it has made a fair display of branches. Members of co-operative associations now exceed 300,000 in number. They have subscribed a capital of 2¾ millions sterling. They are doing business to the amount of between ten and twelve millions a year; on which they have made something more than seven per cent. by way of profit—or we may say in round numbers, 800,000*l*. Not content with the silent eloquence of success, the friends and supporters of the movement have now added to the number of those "Congresses," which are becoming such common features of the day; and have sent 200 delegates to Halifax, where they have met under the presidency of a gentleman who has a hereditary claim on the gratitude of the working classes.

It seems evident from what has transpired at the meetings during the past week, that the development of the co-operative principle is, at present, at a critical period of its growth. To the sound practical good sense displayed in the speeches, both of Mr. Brassey and of Mr. Walter Morrison, we are happy to bear an unhesitating tribute. Those gentlemen have used many arguments, and cited many authorities or experiences, that are not unfamiliar to our readers. And we think that in the remarks which we wish to offer, we shall have the hearty concurrence of all the more educated and thoughtful of the well-wishers to co-operative effort.

The point to which we refer as critical in the course of this movement has been indicated in the inaugural speech. Co-operation has two branches—distribution and production. The respectable balance-sheet to which we have referred, chiefly tells of the operation of the former. As to the latter, which is comparatively young and unformed, the chief example cited is one of misfortune; namely, the Ouseburn Co-operative Engine Works.

We must, before proceeding further, express the satisfaction with which we observe the firm, manly, and modest resistance opposed by Mr. Morrison to an effort to shift the operations of the members of the Congress to a field not only alien, but hostile, to the genuine purposes of this association. There is nothing which, as it seems to us, the scientific and industrial press is more bound to bring before the world than the necessity of conducting every business, and every scientific inquiry, according to its own rules and principles. The greatest enemy to truth, and thus to progress, and thus to welfare, is jumble. There is no doubt that half the wars and fightings that take place among mankind are due to jumble. An improvement is suggested which is, on mature consideration, worthy of adoption. Its actual advantage may be computed at something considerable. Its contingent advantages may promise to be far more extensive. But with this is connected the disturbance of some vested interest; or the possible call on some old-established custom to betake itself to a new groove; and the consequence is an amount of indirect and valid opposition, before which the improvement collapses. It is not treated according to its merits, but on altogether different principles.

The great thing is, to lay aside passion and prejudice, and to learn what true regulating principles actually are. For this reason every attempt to bring class interests, or political party interest, to bear on what is specially an industrial question, is most mischievous. We congratulate Mr. Morrison on the tone he has taken in the matter.

On the other hand, our readers are aware of the attempts made, repeatedly and openly, by the retail traders to stamp out co-operative distribution. These efforts have, no doubt, failed. It was right and proper that they should fail. But there is a point of great difficulty involved here, and one which, we fear, will involve much suffering, and perhaps, much in blood, before it is finally settled.

In a complex system, such as that of modern civilisation, no very mighty change can be introduced in any part, which does not affect the whole organisation. The last half-century has witnessed the greatest change in the physical means of distributing produce, manufactures, and information, that has ever occurred in the history of the world. The effect of this change is now painfully felt by a large number of those persons who get their livelihood by distribution.

It is all very well to cry out against the great profits of the retail tradesman, and the ease with which he acquires wealth. And retail dealers have given cause for this. But what are the other circumstances of the case? Persons who have not visited foreign countries are often little aware of the claims of the retail dealers of this country to public gratitude. We owe to them a service which for excellence, promptitude, and, generally speaking, courtesy, is unrivalled in the world. Also (though this has its black side), the public owe to the retail trader a very large amount of forbearance and good faith in money matters. Let us take one instance. Look at the provisioning of London! What military commissariat was ever equal, in aptness, promptitude, excellence, and economy, to the great unorganised but ever active body which daily supplies bread, meat, fish, vegetables, fruit, ale, and wine, to a concentrated mass of three millions and a third of human beings?

The fact, however, may be, that a rate or ratio of profit which, before the introduction of the railway system and its collateral facilities (such as the telegraph), was fairly due to the retail traders, as the recompense of his exertions is, all things considered, now too high. This rate may be taken as one-third of the price paid by the consumer. Our present anxious experience in India tells us how much depends on the bringing to the hungry mouth of the food that is a drug in another part of the country. Thirty, fifty, or a hundred per cent. is not a question, then, of immutable proportion of what is "fair," but an actual estimate of the remuneration properly due for service actually done. What does the distribution cost? That is the matter that should decide how much the distributors should receive.

Here it is that the railway distribution has thrown retail trade off its balance, while preparing the way for a better adjustment. For the very existence of retail trade two prices are necessary,—that paid to the producer, and that, including the repayment of the former amount, paid to the distributor. If the second, or retail price vary; if it be lower, for instance, in great centres of population than it is in rural districts; that is to say, if the difference is more than the cost of carriage to such districts, the certain tendency will be to accumulate all retail trade, as far as possible, in the cities. The country retailer is thus in danger of extinction.

That tacit sympathy and combination which frequently subsists between members of the same commercial class has hitherto checked a movement which, none the less, is making progress, and is sure to go on. For many objects it is now far more convenient for persons resident in the country to write to a well-known London establishment, with the certitude of receiving exactly what is wanted by return of post or of train, than to market in a country town. So long as the ordinary rate of trade profit is kept tolerably equal, this tendency is checked. But the effect of this equality is, to give very large profits to the large dealers, simply because of the large amount of their business. The little dealer, mean time, is starving, because he has not enough business to get a living out of his fair trade profit on the amount.

At this point co-operative distribution comes in to complicate matters. You find, in round numbers, that by taking a certain amount of trouble on your own shoulders you save certain charges made by the retail tradesman. That is matter of give and take; fair matter for every one to decide for himself.

Next, you find that, by avoiding certain risks, as well as certain costs, to which the retail tradesman is subject, you effect a certain economy. Let it be 30, or 20 per cent.

The danger here is, that by bringing forward the actual saving in price, irrespective of other qualifications, the large tradesman may be driven to make a reduction in profits, which, in fact, he can well afford to do. But then, what becomes of the small tradesman? He must reduce prices too, whereas he can hardly live as it is.

The ultimate effect, no doubt, will be the reduction of the number of retail tradesmen. Bearing in mind the increased facility of distribution, it may well be the case, both that their numbers are far too large, and that trade profits are far too high. But the misery that will be involved before these things right themselves will, we fear, be very great.

Here then, we are fain to hope co-operation will rather prove to be an influence tending to confine trades—or rather the profits of trade—within due limits, than a permanent element in the social order. Certain expenses attend every kind of provision. If a co-operative bakery, or grocery, or any other store be established, the bakers, and purchasers, and carriers, and all other labour and cost involved by the production of the loaf, or the collection of the pound of currants, that is set on your table, must be paid. The co-operative store, as compared to the shop, has two advantages. First, it has no risk of bad debts; secondly, it has no risk of want of custom. For how much these two items of risk count in our daily expenditure it is hard to say. But if we suppose that the two together may amount to ten per cent. on the cost value, the tradesman, in self-defence, must make a charge of something like 20 per cent. to cover the risk.

On the other hand, the tradesman has a great advantage over the store. There is long, perhaps hereditary, knowledge of the business, and there is the proverbial benefit of the master's eye. The manager is a far less efficient man than the master. That is to say, that, human nature being what it is, the same man would manage his own shop far better than he would manage another man's store. This is an old, old truth, but one which is constantly overlooked. Its influence is unsleeping and immense.

We think, then, it is pretty certain that, with the course of time, the present standard of retail profit will be reduced, and that by perhaps from one half to two-thirds of its actual amount. We admit the great amount of suffering that will be caused by the change. We think that a reduction in the number of retail dealers throughout the country is imminent. But we are convinced that no effort will avert such a change if it once commences. It may be painful, but it is inevitable. By hook or by crook, the average price of distribution will adjust itself to the average cost of distribution, and as that takes place, there will come less and less inducement to interfere with the old-established channels of trade. The tradesman will be the best distributor of his own wares, so soon as the number of those for whom the business has to provide a maintenance be reduced to that of the persons who are actually required for its efficient performance. If no more cats are kept than catch mice, no one will grudge the useful animal her saucer of milk, even if it happen, in some instances, to be rich with cream.

If we are at all correct in supposing, in accordance with the sound principles of economic science, that each business is best conducted by its own members, and that the great function of our present co-operative distributing associations will be rather to place trade on a sounder and more truthful footing than permanently to divert it from those self-formed channels, in flowing through which it has fertilised and blessed our country for eight hundred years, the same observations will apply with much more force to co-operative production. Such, in fact, is admitted in plain terms by Mr. Brassey. The difficulty of obtaining efficient superintendence for a co-operative factory is found to be extreme. That gradual growth by which individual businesses, such as the gigantic operations of the late Mr. Brassey, attain magnitude, may well be considered essential to success. You can no more create a large, sound, well-ordered business than you can create a crop of corn. Each has to be carefully watched, and tended in its growth from the germs.

None the less do we heartily desire to see the fullest play given to experiments of this nature. We confess, however, the belief, that the co-operative system is of most avail when it is applied, not to originate, but to aid. It is when the master of a large establishment, or the head of a large firm, makes plain to all his hands that, by working for him they are working for themselves, we have the truest and most efficient co-operation. The name of Mr. Briggs is most honourably associated with this aspect of the case. We believe that there are more than one large establishment in the North where a real partnership exists between master and men, and where a definite and agreed distribution of profits is made, between those who find the actual labour and those who fulfil the far more difficult task of finding employment for that labour. To this we look, we confess, as the brightest and most permanent phase of co-operation. It is no new thing to us, and we hope before long it will cease to be rare. It will be always more easy to find and to pay workmen, than to find and pay a good master or manager.

There is no royal road to wealth, any more than to learning, nowadays. Every business has its own laws, and misfortune will attend their breach. Even co-operative factories are not free from strikes. What we have to do is, to remember, on the one hand, that human nature will assert its own tendencies; on the other hand, that trade will obey its own certain laws. We want to bring these two influences to pull in the same direction. When they are opposed, the result is misfortune and confusion; when they go together, it is the public welfare.

CHURCH BUILDING IN SOUTH LONDON.

Several new churches are about to be erected in different parts of South London. Amongst others a large church is immediately to be erected close to Kennington-park. It will be centrally situated in a new district, which has been formed out of the parish of St. Paul, Walworth. The new church, which is to be dedicated to St. Agnes, is intended to be a large and handsome architectural structure, and will cost about 10,000*l*. In connexion with it there are to be new schools erected, and also a parsonage-house. The site has been secured at the sole expense of one gentleman, and the sum of 5,000*l*. has already been subscribed towards the building. The ecclesiastical commissioners have also granted an endowment. Another new church is also about to be erected in Ferndale-road, Shepherd's-lane, Brixton, close to the new baths, which are now nearly ready for opening, and where a large number of new houses are in course of erection. The new church of St. Gabriel, which has just been erected in Newington church-yard, is now finished, and opened, as elsewhere more particularly mentioned in our columns.

ST. GABRIEL'S, NEWINGTON.

The mission church, which was designed to replace in part, a few yards from the original structure, the to-be-demolished parish church of St. Mary's on the Butts, is now finished and opened. The building is plain, and is erected upon piers and arches, instead of continuous footings, in order to disturb as little as possible the graves in the churchyard. The piers were first built up to the springing level of the arches; the ground between the piers was then cut away at the proper curve, forming an earth centre, which was rendered in mortar to make the curve true. The brick rings were then built over. Oblong in general form, the new church consists of chancel, nave, two aisles, and vestries; the architecture is Early Gothic; and the materials used in building are red brick, with stone sills, weatherings, window traceries, &c. The building has an open-timbered roof covered with slate and surmounted at the chancel arch by a bell-gable, moulded brick strings relieving the exterior wall-surfaces. The nave arcades consist of four pointed arches, carried on stone moulded caps and bases, and blue stone shafts; above there are eight clear-story windows on each side. The chancel floor will be 3 ft. 6 in. higher than that of the nave. The reredos will be chiefly of stone (carved), and supported on each side by ornamental panels, which will return some few feet into the chancel. Messrs. Lathey, Brothers, of Battersea, are the builders. The cost was 5,000*l*. Mr. E. J. Cutts, of Hammersmith, was the architect.

Designs for Cards and Certificates.—The Committee of the London School Board brought up a report, recommending that a letter be addressed to the Science and Art Department, stating that the Board were prepared to offer a reward of 5*l*. for the best design of an attendance card, of a drill certificate, and of a musical certificate, respectively, with the understanding that the names of the successful designer or designers should be published, and asking if the department would assist the Board in obtaining a few designs. The recommendation was agreed to.

DECISION AS TO THE EXETER REREDOS.

A GOODLY crowd assembled outside the Chapter House of the Cathedral Church of St. Peter, at Exeter, on Wednesday, anxious to hear the judgment of the Lord Bishop touching the erection of Sir Gilbert Scott's much talked-of reredos. The doors were opened at ten minutes to twelve, and in a very few minutes the place was densely packed. The Chapter House, situated to the south of the south Norman tower, is some 75 ft. by 30 ft., the lower portion being Early English,—built by Bishop Bruere,—the upper part Perpendicular, and covered by a richly-decorated oak roof. The cathedral library of upwards of 8,000 volumes is kept here, and chapter business usually transacted therein. The ancient walls have seldom looked down upon a more expectant audience than they did on Wednesday,—an audience so crowded that the bishop's attendants made room for his lordship to pass with some difficulty. The bishop, arrayed in his robes, took his seat precisely at twelve o'clock. The dean was not present; the chapter, however, were there, arrayed in their academic gowns.

Bishop Temple proceeded, amidst an impressive silence, to read Justice Keating's opinion. This occupied exactly one hour, and was against the defendants on both points; thus giving the bishop full jurisdiction over his cathedral, and condemning the reredos *in toto*.

The decision created some sensation in court amongst the audience, and the excitement was added to when Archdeacon Freeman got up and endeavoured to speak in defence of the reredos. This he was prevented doing, and the Bishop then pronounced judgment, ordering the removal of the reredos, and the substitution of a stone screen without images, or a continuation of the grating on each side, and the erection of the Ten Commandments in such a position as to meet the requirements of the canon. He added, that he should be ready to receive an application for a faculty to vary the above order, and to make such arrangements as, without involving anything illegal, would contribute to the architectural beauty of the cathedral. In the event of there being no appeal against his judgment, and the reredos not being removed, the petitioner would be at liberty to apply for a monition to enforce the order.

We have already given our readers an engraving of this ill-fated work. It is not perhaps the most successful of Sir G. G. Scott's productions, and contrasts somewhat harshly with the charmingly graceful sedilia close by.

Chancellor Harrington and Dr. Blackall, M.D., have paid the whole of the expense for the erection of this reredos.

SCHOOL BOARD SCHOOLS FOR LONDON.

Grove-road, Forest-hill.—The formal opening of this school, which is situated in a pleasant green valley, about half a mile distant from the Forest-hill station of the London, Brighton, and South Coast Railway, has taken place, under the auspices of Sir Charles Reed, M.P., chairman of the London School Board. The proceedings commenced with a careful inspection of the school buildings, which are better provided with means of ventilation, educational apparatus, healthy playgrounds, lavatories, &c., than many of the high-class schools either in or out of London. Sir Charles Reed handed the key over to the Local School Board authorities. He cited the work that had been done by the Metropolitan School Board in the Greenwich district, to which the Grove-road belongs, as a proof that the Board was a Board of action. In that district there had already been provided school accommodation for 12,186 children, and the school they were then opening would accommodate 585 more. He hoped that before the end of the year the Board would have about 90 schools in full work, and they would then have reached the limits of the Act of Parliament, but he believed they would soon have to build still more schools for the ever-growing population. The Grove-road school and its surroundings occupied 19,370 square feet of ground, and had been erected at a cost of 6,733*l*. It would accommodate 152 girls, 152 boys, and 281 infants. It was generally, he said, the custom to put the boys first, but he gave the girls precedence, because the Board was of opinion that in educational matters our girls had hitherto been very much neglected, and it was the intention of the Board to use its utmost power and zeal to repair the injustice. The architect of the new school was Mr. H. Saxon Snell.

Wandsworth-road, Battersea Park.—Sir Charles Reed also presided at the formal opening of the school erected by the Board on a plot of ground facing Lower Wandsworth-road, and immediately adjoining Battersea Park. The building, besides possessing every modern educational appliance, is an ornament to the neighbourhood. According to a statistical paper read by Mr. Molyneux, the official district correspondent, it will accommodate 297 boys, 290 girls, and 319 infants. The cost of the site, 32,670 square feet, was 2,258*l*. 3s. 6d., and of the building 6,866*l*. 13s. 9d., making a total of 9,124*l*. 17s. 3d., or 10*l*. 0s. 2d. per head. The school fees will be twopence per week for infants and threepence for boys and girls; and no doubt whatever prevails that, within a week of its opening, the school will be quite full in each department. Sir Charles said it was erroneous to speak of these institutions as State schools; the more correct definition would be to style them schools of the people, built and supported by the money of the people, and managed by the representatives of the people. In fact, the schools were the property of the people, and not of the State.

Commercial-road. — Another new school in connexion with the London School Board has been opened in Gloucester-street, Commercial-road. Mr. E. H. Currie, the chairman of the Works Committee of the Board, presided over the proceedings. He said that the school which had been thrown open was the eleventh permanent Board School that had been erected in the Tower Hamlets. There was now permanent school accommodation in the Tower Hamlets division of the metropolis for something like 12,000 children, and four more schools were in the course of erection, which, when finished, would make the school accommodation amount to 15,000. The school which they were opening was large enough to educate 386 boys, 380 girls, and 285 infants, giving a total of 1,050. Those assembled would be glad to hear that 400 children had attended that morning. The school was an expensive one; but this was due to the necessity of having to make a deep excavation in order to reach a sound foundation. By November next the School Board would have erected 86 new schools, which would give accommodation for 81,000 children.

Mansfield-place, Kentish Town.—A very large number of the inhabitants of that portion of the borough of Marylebone which lies between upper Kentish-town and Hampstead crowded to the new schools in Mansfield-place, Kentish-town-road, built by the London School Board, the occasion being the official opening. Sir Charles Reed presided. The schools stand on a very large site, and provide for 1,100 children, at a cost of little more than 8*l*. per head. There are three departments,—boys, girls, and infants, all with separate open playgrounds on the level, part covered. Each department is fitted with cloak-rooms and lavatories, and there are class-rooms in addition to open general school-rooms. In the room which is to seat some 240 children upwards of 800 adults had crowded on the occasion of the opening. All the walls are decorated with pictures illustrative of natural and scriptural history, oleographs of standard pictures, and sketches of various industries. Classes can pass to the general school-room by out-galleries, so as not to disturb other class-rooms on the one hand, or to take up space by passages on the other. The old "form" system is entirely abolished by the use of the newly-invented desks, which provides seats, desks, and a shelf for each child's books and utensils, thus training the child from the first day to habits of order and care. The architect was Mr. Robson, the architect of the Board, and the builders were Messrs. Niblett & Son. The chairman stated that the Board had received eleven new sites in the Marylebone division, in which this school was situated. Besides these eleven sites, the Board had had schools transferred to it, and had hired temporary buildings, making provision in 29 schools in this division for 13,800 children. The site on which the set of schools then to be opened stood had an area of 17,945 square feet, and cost 2,900*l*., and the cost of the whole was 9,680*l*. The provision was for 327 girls, 240 boys, and 462 infants. For the number of children provided for he considered these to be cheap schools.

Henry-street, Hampstead-road. — The formal opening of the new schools in Henry-street, Hampstead-road, took place in the presence of a large number of persons. Mr. Currie, vice-chairman of the Board, occupied the chair. After an inspection of the building, which, like the other schools erected by the Board, consists of a series of rooms plainly but substantially built, admirably adapted for the purposes of instruction, and provided with all suitable accommodation for so large an establishment, the chairman congratulated the audience that the present fine building was erected on the site of the Brook-street Refuge and Ragged School. They had been accused of extravagance in their buildings, but he defied any one to point out in that building a single thing that could be well left out. To be sure they gave pleasant and healthy rooms, and would provide the best teachers. The cost of the building was at the rate of 8*l*. 2s. 8½d. per child, and there was accommodation for 755 children; 303 infants in that room, 204 girls on the floor above, and 248 boys on the top floor. They had also capital play-grounds attached to the building. The value of these schools might not be apparent at the moment, but he believed that the state of London would be different twenty years hence from what it was now. The cost of the education of each child would be 1*l*. to each ratepayer, and that was a wiser payment than perhaps 20*l*. or 30*l*. for maintenance in perhaps a different place?

THE FIRST HANTS ARTILLERY NEW DRILL HALL.

THE new drill-hall provided for the accommodation of the First Hants Artillery, at Southampton, has been inaugurated by the Mayor. The site is at the junction of Nichols and Northbrook-roads, about 200 yards from the north end of St. Mary's-street, and 300 yards from the new railway station at Northam. The building, which has been designed by and executed under the superintendence of Mr. W. H. Mitchell, architect, and in the arrangement of which the strictest economy had to be observed, is built of red bricks, relieved by white brick bands and dressings, and is intended to be pointed with black mortar. The principal entrance is at the south end, by a pair of large folding doors placed in a projecting vestibule (intended to be hereafter supplied with inner doors) giving access to the drill-hall, which is 92 ft. 8 in. in length between the walls, by 44 ft. in width, which, although shorter, is 2 ft. wider than the Carlton Hall, the headquarters of the 2nd Hants Rifle Corps. At the north end, or opposite the entrance, there is a raised platform, intended for the accommodation of the band of the corps, and other purposes; whilst beneath this are situated the orderly-room, 22 ft. by 11 ft., and the armoury, 208 ft. by 8 ft.; each of these rooms is 8 ft. 6 in. high, and heated by open fireplace, and the walls lined with match boarding. A door placed in the side into Northbrook-road gives easy and convenient access at any time to the platform or lower rooms without disturbing an audience in the hall; and the staircases are arranged to allow of the orderly-room being used as an assembly or retiring-room, connected with the platform without in any way interfering with the drill-hall or armoury. The roof is supported on seven semicircular trusses, springing from stone templates, placed 4 ft. from the floor, giving a height of 26 ft. to the under side of the truss in the centre of the hall. The roof, which is open timbered and boarded, is distempered in two colours. The hall is lighted from the roof, and the floor is of wood, the portion intended for heavy drill being laid with 2½ in. battens. A door in the west wall, near the platform, gives access to an enclosed yard, 30 ft. by 20 ft., containing coal-store, lavatory, and offices. The work has been executed by Mr. Jonas Nichols, the lessee of the land, whose tender was lowest in a public competition. The old gas-fittings have been re-used, under the direction of Mr. Durkin, and the space between the building and footpath has been planted with evergreens by Mr. W. H. Rogers.

New Hall at Hayward's-Heath. — The new recreation-hall at the County Asylum, Hayward's-heath, has been opened. The hall, at the end of which is built a permanent theatre, was designed by Mr. H. Card, of Lewes. It is capable of holding, seated, about 500 persons. The stage at the end is raised from the floor of the room, and the size of the proscenium is 16 ft. wide by 17 ft. high.

VAUXHALL AND RANELAGH.

IT is a very curious fact, that while on the Continent the public take the chief portion of their summer amusements in the open air, we in England have scarcely any *al fresco* entertainments for respectable people. The usual explanation given of this difference in national habits, is that our climate is unfitted for outdoor recreation, and that, therefore, had we the settled weather of more southern countries, we, like their inhabitants, should live a more open-air life than we do now. But this cannot be a sufficient explanation in face of the actual fact that Vauxhall Gardens existed for nearly two centuries. There can, we think, be little doubt that the national characteristics of Englishmen have undergone a considerable change since the end of the last century. In the 16th, 17th, and 18th centuries our countrymen appear to have lived a life much more like the Continental one than we now live. What has caused this change it is foreign to our present purpose to inquire. Most travellers on their return from the Continent must feel the want in London of such outdoor entertainments as are supplied in so many foreign towns by the Kursaals and summer theatres, where are combined early hours and innocent amusement. English families have no place where they can go on fine evenings to hear good music and meet their friends, for, without stepping aside to censure such places as Cremorne and North Woolwich Gardens, we may safely say they are not the places to which a gentleman would care to take his family. Our fathers *did* take their children to Vauxhall, and we will now see what the place they visited was like. A forgotten poet of the last century supposes Eden to have been borne undestroyed by the flood, and that—

> "After floating many a year,
> At length it fix'd and settled here";

but our standard authors were little less laudatory when they had to describe the beauties of Vauxhall. Fielding writes in his "Amelia":—"The extreme beauty and elegance of this place is well known to almost every one of my readers, and happy it is for me that it is so, since to give an adequate idea of it would exceed my power of description." Goldsmith is not behindhand in laudation, and he puts the following words into the mouth of his Chinese philosopher:—"The illuminations began before we arrived, and I must confess that upon entering the gardens I found every sense overpaid with more than expected pleasure: the lights everywhere glimmering through scarcely moving trees; the full-bodied concert bursting on the stillness of night; the natural concert of the birds in the more retired parts of the grove, vieing with that which was formed by art; the company, gaily dressed, looking satisfaction; and the tables spread with various delicacies, all conspired to fill my imagination with the visionary happiness of the Arabian lawgiver, and lifted me into an ecstasy of admiration."

Vauxhall, Fawkeshall, or Foxhall, takes its name from Fulke de Breauté, who built a mansion-house in the manor of South Lambeth, and from his time the manor was called indifferently Fawkeshall or South Lambeth. In a record of the reign of Edward I. it is declared to contain twenty-nine acres of meadow land and eighty acres of arable land. The hall built by King John's mercenary follower was destroyed in course of time, and another building, known as Copped Hall, took the name of Vauxhall. Here the unfortunate Lady Arabella Stuart was a prisoner, under the custody of Sir Thomas Parry, Chancellor of the Duchy of Lancaster. Hartlib, in a letter to the Hon. Robert Boyle, dated 1649, writes:—"Fauxhall is to be sett apart for publick uses, by which is meant making it a place of resort for artists, mechanicks, &c., and a depot for models and philosophical apparatus;" and in 1654 Hartlib again writes:—"The Earl of Worcester is buying Fauxhall from Mr. Trenchard, to bestow the use of that house upon Gaspar Calehof and his son as long as they shall live, for he intends to make it a College of Artizans." Sir Samuel Morland, the projector, possessed the house for some years, and filled it with his inventions. He built a room in the garden which he lined with looking-glass and filled with fountains, to which many visitors flocked. The manor of Vauxhall was famous for its pottery, its plate-glass, and its gardens. The latter were long known as the Spring Gardens, and this name was continued as late as the year 1785. The Spring Gardens in St. James's Park, although attached to the palace at Whitehall, was a place of public resort in the reign of Charles I. and during the Commonwealth, but at the Restoration the entertainments were moved to the New Spring Gardens at Vauxhall. Evelyn notes in his Diary on the 2nd of July, 1661, that he "went to see the New Spring Garden at Lambeth, a pretty contrived plantation." Pepys was a constant visitor at the new place, and the name Fox Hall often occurs in his Diary. In June, 1665, he watches the humours of the citizens, "pulling off cherries and God knows what"; but in the following month he chooses a bad day, for he sees no guest there. In May, 1667, he appears to have been very pleased with his visit:—"A great deal of company, and the weather and garden pleasant, and it is very pleasant and cheap going thither, for a man may go to spend what he will, or nothing, all as one. But to hear the nightingale and the birds, and here fiddles and there a harp, and here a jew's trump, and here laughing and there fine people walking, is mighty divertising." He afterwards expresses himself as greatly shocked at the conduct of Harry Killegrew, young Newport, and other gay sparks of the time. The Spring Garden is constantly referred to in the fashionable plays, but the next incident of interest in its history is Sir Roger de Coverley's visit in 1712, as described in the *Spectator*. This trip of the worthy old knight from the Temple Stairs to Vauxhall is more vividly brought before our eyes, and therefore appears more real to us than that of any actual visitor to the place. We have little to record until the year 1730, when the premises were leased to Jonathan Tyers, who made great alterations and improvements in the gardens, and opened them on June 7th, 1732, with a *ridotto al fresco*, then a novel entertainment. On this occasion the Prince of Wales, and about four hundred visitors (mostly masked), were present, besides one hundred soldiers to keep order. The success of this and subsequent repetitions caused the proprietor to open the gardens every evening during the summer months. He spared no expense in his decorations, and obtained paintings from Hogarth, Hayman, and other artists. He erected a handsome orchestra, and placed the since-famous statue of Handel (Roubiliac's first work in England) in a conspicuous part of the gardens. Hogarth also designed for his friend Tyers, a set of tickets of admission for subscribers, which were struck in silver; one was in gold for Hogarth himself, to whom it was given as an acknowledgment of his services. The favourite mode of reaching the gardens was always by rowing-boats, and on a gala day the Thames must have exhibited a very brilliant appearance. Thus Pepys and Addison went, and thus the visitors journeyed almost to our own times. The author of "A Trip to Vauxhall" (1737), describes how he went there, in company with two ladies:—

> "Lolling in state, with one on either side,
> And gently pulling with the wind and tide,
> Last night, the evening of a sultry day,
> We sail'd triumphant on the liquid way,
> To hear the fiddlers of Spring Gardens play,
> To see the walks, orchestra, colonnades,
> The lamps and trees in mingled lights and shades.
> The scene so new, with pleasure and surprise,
> Feasted awhile our ravish'd ears and eyes.
> The motley crowd we next with care survey,
> The young, the old, the splenetic, and gay."

We have a later and more amusing picture by Hookham Frere in the "Loves of the Triangles":—

> "So thy dark arches, London Bridge, bestride
> Indignant Thames, and part his angry tide,
> There oft-returning from those green retreats,
> Where fair Vauxhallia decks her sylvan seats;
> Where each spruce nymph from City compters free,
> Sips the froth'd syllabub or fragrant tea;
> While with sliced ham, scraped beef, and burnt champagne,
> Her prentice lover soothes his amorous pain;
> There oft in well-trimm'd wherry glide along
> Smart beaux and giggling belles, a glittering throng."

In 1749 immense crowds were attracted down to Vauxhall by a musical performance, which is described as follows in the *Gentleman's Magazine*:—"April 25th, 1749, was performed at Vauxhall Gardens, the rehearsal of the music for the fireworks (to be given in St. James's Park on the 29th), by a band of 100 musicians, to an audience of above 12,000 persons: tickets, 2s. 6d. So great a resort occasioned such a stoppage on London Bridge that no carriage could pass for three hours." Walpole gives an amusing account, in a letter to Montague, of his visit to Vauxhall with Lady Caroline Petersham and other gay friends, in 1750. Miss Burney describes the gardens in her "Evelina" (1778). Mr. Smith considered Vauxhall to be the first pleasure in life; but Evelina herself would have liked the place better had the walks been less formal. One of the favourite sights at this time was a cascade, which played for so short a time that all the company rushed to it, in case it should be over before they arrived. The ladies of Evelina's party get separated from the men, and are insulted in the Dark Walk; and this leads us to say a word as to the character of some of the visitors. In a "Description of Vauxhall," published in the last century, we read, "This walk in the evening is dark, which renders it more agreeable to those minds who love to enjoy the full scope of imagination, to listen to the orchestra and view the lamps glittering through the trees." This a purely imaginative picture, and the sober truth was described by the newspapers, which speak of the loose persons of both sexes who frequented the Dark Walk, "yelling in sounds fully as terrific as the imagined horrors of Cavalcanti's bloodhounds." Ladies were sometimes forcibly driven from their friends and wantonly frightened. In consequence of these enormities, the licensing magistrates, in 1763, bound the proprietor to do away with the Dark Walk, and to provide a sufficient number of watchmen to keep the peace. A poet, in 1773, gives but a sorry account of some of the visitors in his day:—

> "Such is Vauxhall—
> For certain every knave that's willing,
> May get admittance for a shilling;
> And since Dan Tyers doth not prohibit,
> But rather seems to strip each gibbet,
> His clean-swept, dirty, boxing-place,
> There is no wonder that the thief
> Comes here to steal a handkerchief;
> For had you, Tyers, each jail ransack'd,
> Or issued an Insolvent Act,
> Inviting debtors, lords, and thieves,
> To sup beneath your smoke-dried leaves,
> And then each knave to kindly cram
> With fusty chickens, tarts, and ham,—
> You had not made such a collection
> For your disgrace and my selection."

On the 29th of May, 1786, there was a jubilee night to celebrate the fiftieth anniversary of Jonathan Tyers's management, although, as he opened the gardens in 1732, it was four years over-due. Tyers made a large fortune during this long period, and he retired to his country seat, Denbies, near Dorking. The Prince of Wales, afterwards George IV., was very fond of Vauxhall, and during his time it was a place of fashionable resort. During the present century the chief attractions have been the fireworks, and the ascents of various balloons. The first exhibition of fireworks took place in 1798, and in 1802 a Frenchman, named Garnerin, ascended in a balloon and tried the capabilities of his parachute. A kitten was sent down first, and her exploit was celebrated by George Colman, the younger, in a song,—

> "Poor puss in a grand parachute,
> Was sent to sail down through the air,
> Plump'd into a garden of fruit,
> And play'd up old gooseberry there.
> The gardener transpiring with fear,
> Stared just like a hundred stuck hogs;
> And swore, though the sky was quite clear,
> 'Twas beginning to rain cats and dogs."

Garnerin afterwards trusted himself in the parachute.

The musical arrangements were always carefully attended to, and at one time Dr. Arne was the chief musical composer. In 1812 the salaries given to the two principal singers were 200*l.* to Charles Taylor and 250*l.* to Mrs. Bland for the season. The prices of admission have varied considerably at different times: thus, prior to 1792, the price was 1s., in that year it was raised to 2s., but this sum included tea and coffee. In the present century 4s. were paid without refreshment, and in the last years of the existence of the gardens the entrance charge was reduced to 1s. In 1848 it was reported that Vauxhall was to be transformed into a Winter Garden, but in 1850 it still existed as an open air one, and a pictorial representation of the Kremlin of Moscow was exhibited. It was deserted in its last years by its former patrons, and it was therefore well when houses occupied its site, and it became a thing of the past.

We will now pass on to Ranelagh, which was opened long after Vauxhall, and was finally closed long before those gardens ceased to exist. It occupied the site of the gardens attached to the villa of Viscount Ranelagh, which adjoined the gardens of Chelsea College. In 1733 Lacy, the patentee of Drury-lane Theatre, and one Solomon Rietti, took a lease of the premises with the design of establishing a new and magnificent place of entertainment, but the undertaking was too large for their purses, and the property

was therefore divided into thirty-six shares of 1,000*l.* each, the greater number of which were held by Sir Thomas Robinson, a well-known man in his day, who was called by Mrs. Carter, the Knight of the Woeful Countenance. The Rotunda was begun in 1741, and opened with a public breakfast on April 5th, 1742. For a short time morning concerts were given, but Sir John Barnard complaining to the magistrates that the young merchants and City apprentices were frequently seduced from their counting-houses and shops by these morning amusements, they were prohibited, and the doors opened at six o'clock in the evening. Ranelagh at once became the rage, and so universal was the public admiration of the place, that we find such totally different men as Dr. Johnson and Horace Walpole writing in its praise. Johnson said that the *coup-d'œil* was the finest thing he had ever seen. "When I first entered Ranelagh it gave an expansion and gay sensation to my mind such as I never experienced anywhere else;" and Walpole wrote to Conway—"Every night constantly I go to Ranelagh, which has totally beat Vauxhall. Nobody goes anywhere else—everybody goes there. My Lord Chesterfield is so fond of it, that he says he has ordered all his letters to be directed thither." Masquerades were got up with great expense and magnificence, and Goldsmith and Reynolds often visited them. Goldsmith was singled out by the wags, who knew him through his disguise, and teased him with their jokes. His literary enemy, Kenrick, wrote some verses, "On seeing Dr. Goldsmith's name in the List of Mummers at the late Masquerade." Ranelagh was usually frequented by a more distinguished company than Vauxhall, as we may see from "Evelina," for in that novel the heroine visits Vauxhall with her vulgar relations, the Branghtons, and Ranelagh with her aristocratic friends, the Mirvans. It was at first the custom for ladies to go to Ranelagh in undress, as they did to Vauxhall, but afterwards the fashion was to appear there in full dress. The usual entertainments provided do not appear to have been very interesting, and consisted principally in walking backwards and forwards round the great Rotunda. The poet Bloomfield ridicules this social treadmill in some verses commencing—

"To Ranelagh once in my life
By good-natured force I was driven;
The nations had ceased their long strife,
And Peace beam'd her radiance from heaven.
What wonders were here to be found,
That a clown might enjoy or disdain?
First we traced the gay circle all round,
Ay—and then we went round it again."

In April, 1749, a "grand jubilee, in the Venetian taste" was given by command of George II., who attended it, accompanied by his court and about 6,000 visitors. In 1751 the evening amusements were advertised under the name of Comus's Court. There is a curious engraving of the Rotunda, representing the notorious Sir John Hill without his hat or wig, and a man pulling his ear. It is entitled "A Night Scene at Ranelagh, on Wednesday, 6th of May, 1752," and from the *Covent Garden Journal* we learn that M— B—, Esq., was brought before a magistrate to answer for this assault. Hill had many enemies, and probably no friends, for he took much pains to obtain the former. He published a pamphlet entitled *The Petition of I*, in which he charged Garrick with pronouncing the letter *i* like *u*. Garrick replied in a very happy epigram, ending,—

"Most devoutly I wish that they both have their due,
And that I may never be mistaken for U."

Hill also got embroiled with Woodward, the comedian, who issued a pamphlet with the motto, "I do remember an apothecary, culling of simples," alluding to a story that Hill was forbidden entrance to some noblemen's gardens for having purloined several valuable plants. In May, 1767, the first concert of catches and glees took place at Ranelagh. On September 28, 1768, the King of Denmark breakfasted with Sir Thomas Robinson at Prospect-place, a house close by, and afterwards visited the gardens. On June 23, 1775, the Thames was a floating town, owing to the large numbers who wished to see the regatta. After the sight was over, the evening was concluded with music and a supper at Ranelagh. The elegant ticket of admission, engraved by Bartolozzi, is sometimes to be found in collections of curiosities. On June 26, 1793, the Chevalier D'Eon fenced publicly with a French professor of the art. The Picnic Society gave an afternoon breakfast to about "two thousand persons of the first distinction" on June 28, 1802. In 1803 two magnificent entertainments were given. One was the Installation Ball of the Knights of the Bath, and the other a ball and supper by the Spanish ambassador. These were the last exhibitions of Ranelagh splendours, for the Rotunda was never opened as a place of public amusement after the 8th of July, 1803. On the 30th of September, 1805, an order was made for its destruction, and soon afterwards all trace of this once fashionable place was effaced, the gardens being added to those of Chelsea Hospital.

The Rotunda was so remarkable a building for the time it was erected, that we will give some description of it before we conclude. From the views that exist its external appearance seems to have been much like that of the Albert Hall, although it was, of course, not so large. The external diameter was 185 ft., the internal 150 ft. Round the whole on the outside was an arcade and over it a gallery, the stairs to which were at the porticos. Over the gallery were windows, sixty in number. Within were forty-seven boxes round the building, and in each of these boxes there was a table with cloth laid for the refreshments of tea and coffee. In the centre of the Rotunda was a very striking erection which reached from the floor to the roof. It was originally intended for the orchestra, but being found to be unsuited for that purpose the players were moved into one of the porticos, and this was altered into a fireplace. At night the building was lighted by twenty-eight chandeliers which hung from the ceiling in two circles. Such was the hall which according to Faulkner was frequently graced with the presence of two thousand five hundred "of perhaps the most beautiful and best dressed personages Europe could produce."

THE RECENT INUNDATION, AND PROPOSED EXTENSION OF THE ALBERT EMBANKMENT.

THE great destruction of property, and the disastrous consequences to families caused by the late inundation of the Thames, has led to a proposal for the extension of the Albert Embankment, which is warmly supported by the Lambeth Vestry, and also by the St. Saviour's Board of Works. We stated last week in the *Builder* that the Rotherhithe Vestry had taken steps to prevent the consequences of a recurrence of the overflow, and we now perceive that other local boards on the south side of the Thames are pursuing a similar course. At the meeting of the Lambeth Vestry last week, the Committee of Sewers reported in reference to causing all banks, wharfs, docks, or defences abutting on any river or stream in the parish, to be raised, strengthened, or repaired, where it may be necessary so to do for effectually draining or protecting the district from floods or inundations, and a resolution was agreed to to the effect that notices be served on wharfingers and others occupying waterside premises, to execute the requisite works, to carry the 69th section of the Metropolis Local Management Act into early practical effect. Mr. Fowler stated, in the course of the meeting, that it was his intention to move at the Metropolitan Board of Works that the Albert Embankment should be continued to Vauxhall Bridge, as the most effectual preventive of future disasters in the parish, and the Vestry warmly concurred in the proposal. It is urged that the only way in which the southern bank of the river can be effectually secured is by the extension of the Embankment, and on this point both the Lambeth Vestry and the St. Saviour's Board of Works appear to be thoroughly agreed. At the meeting last week of the last-named body it was decided to address a circular to the several Boards and Vestries on the southern side affected by the inundation, inviting their co-operation in memorialising the Metropolitan Board. It is considered that the extension of the Embankment will not only be of great benefit to the inhabitants south of the Thames, but also improve the picturesque appearance of the river.

Screw Piles.—The process of screwing in the first cylinder pile in the extension of the new iron pier at the Royal Arsenal, Woolwich, has just been accomplished. The plate is 5 ft. in diameter, and when completed to the proper level it will be 32 ft. long, and will be filled with concrete. It is said to be the largest screw-pile which has yet been employed in pier foundations.

HOMES OF RUSSIAN WORKPEOPLE.

WITH a Russian princess a daughter of England, a livelier interest is taken in her father's empire than formerly, and this interest will, no doubt, be materially increased by the approaching visit of his Imperial Majesty the Czar. With that in view, it may, perhaps, be useful to glance at a few facts concerning the homes of Russian workpeople.

Throughout the empire the agricultural labourers live almost entirely in houses of their own, which are constructed in the following simple fashion:—Logs of the red pine are cut into the required lengths—three, four, or five fathoms—according to the proposed size of the house. The lengths are placed one above the other, the ends being dovetailed together, thus forming, as it were, a huge box of logs. The doors and windows are then cut out, and the pieces carefully numbered by notches; the box is now taken to pieces, and the actual building commences. This is done by placing the lower tier on boulder stones and wooden posts for foundations; then each succeeding tier is added, moss or hemp and tow being used between each layer to fill up all interstices. The walls thus completed, floors and ceiling of red or white pine boards are added, both ceiling and flooring generally being double, with a layer of earth between, and the whole is crossed with boards. The roofing generally consists of wooden tiles. In one corner of the room a large brick stove, similar to an English baking oven, is built, a chimney either of bricks (put loosely together without mortar) or of wood, is carried through the roof, and the house or hut is complete. Here the whole family lives. Generally the house contains but a single room; but sometimes a well-to-do peasant has a house of three or four rooms, and even uses plaster and paper hangings for the walls of his hut. This is especially the case in grain-growing governments, such as Tamboff Voroueje, Pensa, Saratoff, Samara, &c., where the peasantry are more industrious, better fed, housed, and clothed than in the northern governments.

Where the houses are not so many boxes of logs, such as in the district of Nicolaieff, the cottages are usually built of mud, and thatched with reeds, and may be considered tolerably comfortable in summer, but very close and confined in winter—indeed, almost stifling, as the intense cold necessitates the stopping up of every crevice, crack, and keyhole of windows, doors, and apertures through which the icy air could penetrate; and when all the holes are well stopped up, caulked and puttied over, the heating and cooking by reeds are felt as most oppressive, and highly conducive to sickness. Foreigners, however, it is as well to say, have suffered equally much, and in some instances more, through sickness from cold by pursuing an opposite course, and foregoing native precautions against the inclemency of the winter.

The mill people in large towns or their suburbs for the most part live as lodgers in houses varying in size from the peasant's hut to large buildings of two or three stories, but in no case are comfort and cleanliness taken into consideration. The rooms are generally small, low, badly ventilated, and crowded; the same room is used for sleeping and eating; shelves or benches serve as beds; the occupants are generally only known to each other from working at the same mill; very few, indeed, are members of the same family, and children, even where employed in the same neighbourhood as their parents, seldom live with them. Separate sleeping apartments are almost unknown, save in the case of the superior workmen who rise to be overlookers, foremen, &c. These men have often neat, tidy lodgings, and live not altogether careless of appearances. It is a general practice among mill-hands to form themselves into artels, a kind of club or mess, consisting, according to the size of the room, of 5, 10, 18, or 20, or even a greater number of members. Each artel engages a woman to cook, and appoints a treasurer to encash monthly the subscriptions due to the general fund for provisions, &c. The food of the workmen generally consists of black bread, fresh and salt fish, soup from cabbage, meat, potatoes, mushrooms, cucumbers, &c. As a rule in the neighbourhood of large towns the people live very fairly, comparatively speaking, generally at an average rate of about 1*l.* per month per man; at other places, however, the living is very wretched, the food consisting of little else besides black bread and water, and occasionally a little tea.

Of late years the better class of mill-owners

have adopted the plan of providing lodgings for their own workpeople, and in many instances have built large houses constructed on sanitary principles; here the people are divided into three classes, the married, the unmarried men, and the unmarried women. To each is allotted a separate house or part of the house; the supervision of the lodgings is entrusted to competent persons, and an extent of cleanliness and comfort is attained which would be quite impossible to arrive at in any other way. The inmates pay for their lodgings according to the size or the number of rooms occupied by them, the amount due for rent being deducted every month from their wages. Under this system a single man will pay from 3s. to 6s. a month, married men from 6s. to 9s. Attached to these houses there is generally a store where the people can purchase the necessaries of life of good quality and at reasonable prices; the store is under the control of the millowner or manager. The hands work on an average thirteen hours per day, commencing at 5.30 a.m. in the winter, and stopping work at 8 p.m. In summer they begin work half an hour earlier. One hour in the middle of the day, generally from twelve to one, is allowed for dinner, and the operatives have usually a short time allowed for breakfast and tea. Workpeople are merely engaged verbally; the rules of the factory are explained to them; they cannot leave their employment without giving a fortnight's, or in some cases, even a longer, notice. It may be as well to say that the rules of the factory have previously received the sanction of the police authorities, and also that masters are bound not to engage any workpeople who are unprovided with passports duly *visé*. Some of the more wealthy mill-owners have already established hospitals in direct connexion with their works, the ground and buildings being provided by the proprietor, while the hands generally support the hospital by a payment of ½ to 1 per cent. on their wages. At several mills schools have been opened, no charge being made at some, while at others expenses are covered by the deduction of a small per-centage from salaries.

Many of our countrymen are employed in the industries of Russia, but invariably as masters and foremen. The native workmen are generally competent but careless, and demand constant supervision. They seem to be indifferent as to the quality of the work they turn out, and unconscientious in undertaking any work given to them without reference to their characters as workmen. Russian artizans are, however, acquiring great skill in all departments of their trade, for the Russian is of an imitative if not an inventive turn, and as he improves in skill he will naturally, one may suppose, improve in care and the quality of the work he executes. At present, however, nearly all the large establishments are directed in their several departments by Englishmen and other foreigners. But employment in Russia is, owing to the climate and severity of the winter, and other causes, very precarious; and in general it may be said that there is no opening for the introduction of foreign labour save of one kind, and that is skilled labour. Intelligent men, having the power of self-restraint with the faculty of commanding obedience, will find an opening for their abilities in Russia, whether as foremen in mills, engineers, or farmers.

THE GOLDSMITHS' ART IN LIVERPOOL.

The Liverpool Art Club, following metropolitan examples, has made a valuable collection of specimens of goldsmiths' art for exhibition. It includes 413 specimens, arranged and catalogued. A preface to the catalogue by Mr. Edward Quaile brings together some information on the subject, doubtless appreciated by those who examine the collection. We print a few passages:—

"From A.D. 600 to 900, not only was nearly all gold work made for the Church, but the best workers were, in many cases, monks, as in the case of St. Aloys, whom the goldsmiths adopted as their patron saint. A simple monk, but remarkable for his skill in metal, and still more for his honesty, he was made a bishop by King Dagobert, 600—620, and made minister and king's treasurer. Yet favoured as he was with the friendship of the king, he continued working at his forge as a simple artizan, assisted by his servant and scholar, 'Thillon Saxon,' making, his biographer says, 'many vases enriched with precious stones for the king.' He founded also a monastery, that the knowledge he possessed might be learnt, and the art practised. No doubt the men who illuminated our missals were able to practise kindred arts in ornamenting Church vessels and ornaments, of which every shrine could absorb an unlimited quantity. During this period the great Charlemagne did much for the art, and his interment was one of the last instances in which valuables were placed in the tomb, and many almost priceless articles were buried with him; they did not, however, remain long undisturbed, and all of them that now remain are his sword and crown, which are at Vienna. One of the most striking monuments of the goldsmith's art of this age is the altar of St. Ambrose at Milan, which, notwithstanding its great value, has survived many risks and dangers; it is in existence still, and any verbal description could hardly give any idea of its magnificence. An inscription states it to have been made by V. Wolfinus, whom Dr. Rock considers, from the name, to have been a Saxon. And now, perhaps, a few words ought to be given to Anglo-Saxon jewelry. What knowledge of metal work the Britons had before the Romans arrived it is impossible to say. The resistance offered by them proves them to have been an energetic people, and as they had coins in use among them, that argues considerable civilisation. They were in a state, under ordinary conditions, prepared to adopt any superior arts shown them by the new comers. The Saxons, who came after the Romans had left, seem to have had more knowledge than the Britons, and to have had ideas of ornament of an original kind; from their custom, common to all pagans, of burying valuables with their dead, we have many of their brooches preserved. They are generally of bronze, coated with silver or gold, with raised edges and sunk centre, and patterns of lines in zig-zag, curves, or interlacings, forming varied and beautiful patterns; and what is strange is, that each of the different tribes of which the nation was composed, Jutés, Angles, and Saxons, had a special pattern for their brooches, which must have been settled by some agreement among themselves, much as the Highland clans adopted a badge or a tartan. They knew, we have seen, how to coat other metals with silver or gold, and practised a kind of enamel or inlaying of coloured stones. There was, however, an entire absence of any power in drawing, and any efforts to represent animals utterly failed. They sometimes attempted to copy Roman coins, but the imitation was very poor. Such people were ready to receive instruction from what the first missionaries brought them in the shape of articles of higher artistic value than they had seen, and to acquire from them a more practical knowledge as to fusing and working metals. The Saxons seem to have done credit to their teachers, and to have acquired a reputation for special skill; for we see that St. Elegius had a Saxon for his right-hand man, and that the shrine of St. Ambrose, at Milan, may have been made by one. The bell of St. Mura, in Lord Londesborough's collection, though claimed by the Irish as Celtic work, seems probably to have been made by the Saxons of Northumbria about 700—800. Certain it is that the few missals which remain of that period show that the Saxon illuminators compare favourably with, if they do not excel, any others of the same period. The rings of Alfred and of his father, Athelwulf, are preserved in the British Museum; the one of Athelwulf is considered of Saxon work—especially as one of the same kind, belonging to the Bishop of Sherborne, about 850, was found in Carnarvonshire. But we know that both Athelwulf and his son, Alfred, had seen Rome, and the rings might have been made by an Italian to his pattern, or by a Saxon monk under Italian influence. A great number of gold ornaments have been found in Ireland, where the metal was formerly comparatively abundant; many still exist, and some show rude attempts at ornamentation. Great superiority in gold and silver work is claimed for the Celts, but their superior skill is not at all proved, though the Tara brooch is a wonderful piece of work. The division of the island among chiefs or kings, and the constant warfare in which they seem always to have been engaged among themselves, must have been eminently unfavourable for the practice of an art like that of the goldsmith. We know that a large number of gold ornaments have been melted down, without any account being kept of their peculiarities, and among them may have been some that would settle the point; but if ornamentation had been understood and practised, there would, we think, have been more evidence than now exists on those that remain. Most of those we possess have been found in bogs, as if dropped in flight from sudden danger. * * *

We have seen that in the early ages most of the goldsmith's art was exercised on objects for the Church. When tournaments were the fashionable meeting-places, ornamented armour and trappings received equal attention with the appointments of the banqueting-hall; after armour was laid aside, richly-decorated daggers and sheaths were, to noble dress, indispensable; later, when watches were introduced, ingenious and skilful work in engraving and enamelling was employed on them. Snuff-boxes had also their day, and were the vehicle for the exhibition of much taste—good and bad. In the present time in England, many works beautiful in design and execution have been produced, and much exactly the reverse; and if any particular article has received more attention than another, it has been those called testimonials; the intelligent inquirer of the future will be astonished and pleased to find that in the nineteenth century there have been so many people who, in their own estimation, and in that of their friends, had so much wealth and so many virtues. When we consider the changes in art, taste, and skill, during the last two thousand years, it is, perhaps, pertinent to ask, Has perfection been found anywhere, or shall we have such artists as the Greeks of the best period, or see better works than they, or Benvenuto Cellini of the Renaissance, produced? Some questions are best answered by asking others: Shall we have greater men than Homer or Shakespeare? We think not—neither in their province nor in that of art; but this we may without presumption believe, that as no actor does justice to himself nor to his part before a cold or slender audience, so such societies as ours, though not founded specially to promote art, but from a common taste in its enjoyment, must tend to encourage all artistic efforts, by assisting in preparing for such a warmer and more intelligent appreciation."

WANTED, A MUSEUM OF CASTS.

It is cheering to find that, amidst all the wild and disorderly janglings of French political life, a voice speaking up for art can make itself heard and listened to.

M. Félix Ravaisson, who is well qualified to speak upon the subject, appeals to his Government, and to all those of his fellow-countrymen who are art-lovers, on behalf of a new museum, —a museum of plaster-casts. As we are of opinion that M. Ravaisson proves his case, and as, further, most of his statements and pleadings apply to our own art necessities, we think it advisable to present our readers with a *précis* of the French critic's paper. We do not forget that we have a number of casts scattered here and there, and that South Kensington has done much towards inducing foreign governments to exchange fac-similes of fine works. Indeed, the proposition to which we are now calling attention may be viewed as one result of what has been done in this direction in England.

In the year 1856 M. Ravaisson proposed to his own Government to take a series of casts of the *genuine* portions of some excellent Greek works in the palaces and gardens of Italy. He exhibited a specimen in the Palais d'Industrie, which most favourably impressed the best judges of sculptured art; but the establishment of a museum of plaster-casts yet remains as an item amongst artistic agenda.

The scheme, on being considered, is by no means an unpractical or extravagant one, for the idea rests upon a sound and truly artistic basis. Any country which possesses a museum of the kind now advocated, must be æsthetically the better for it. In no country more than England, where we already have energy and strength in abundance, does the elevating influence of beautiful objects act so beneficially upon the national character. We have the force,—we shall be all the better for an influx of "sweetness and light."

France already possesses a fine gathering of sculpture in the Museum of the Louvre; still there are many statues of the greatest beauty at Munich, Athens, Rome, Naples, Florence, Venice, Mantua, London, Dresden, and St. Petersburg, copies of which would add an incalculable value to the collection. The same remark applies to our collection at the British Museum.

M. Félix Ravaisson, in urging his case from his own point of view, shows that it would be most advantageous to supplement the *chefs-d'œuvre*

which his country already possesses with a series of reproductions of absolute exactness of proportion and form of the many noble works which are spread over Europe. There must be no mere copies, which are rarely true to the originals, and are never accepted as perfect reproductions by artists. They must be genuine casts taken from moulds made on the original statue, bust, or relief. The operation is purely mechanical, but the fidelity of the cast can never be contested. In examining these plaster-casts, whether of sculptures, or of engraved stones, or metals, may we not imagine that we have before our eyes the precious treasures themselves. What a service to the history of art, and to the practice of art, would be the gathering together of fac-similes of the finest works in marble, ivory, bronze, and wood! The obscurities of antique art have not all been cleared away. Even in the richest museums the number of classical works whose dates have been precisely determined, is comparatively few. Now, if we had gathered together the faithful reproductions of classical treasures, those of an ascertained date could be ranged in such a way as to serve as fixed points between which the works of uncertain date would fall. As our knowledge increased, and after a comparison of resemblances and differences of age and school, we should be enabled to fix the date of a large number of works hitherto classed as of uncertain periods.

The marbles which glorify our museums have, for the most part, been exhumed from the earth in a mutilated condition. Time has only spared us fragments. As these fragments came to light in other times, the first use made of them was to set them up as ornaments in the palaces and gardens of the luxurious and the wealthy. They were far less prized as rare models of good taste and beauty than as a means of embellishing sumptuous halls and galleries or the geometrically regular garden-alleys in vogue. As fragments they lacked interest and importance to their owners, who, consequently, had them "restored." This is the reason why, notwithstanding the fact that there are few antique busts, statues, or reliefs really complete, we find in our collections so many works,—most of them from the villas of past days,—which at first sight appear to be in a perfect state of preservation.

When these antiques were found, the idea prevailed that the best mode of completing one set of fragments was by the aid of another collection of *débris*. In one instance, a statue, wanting a head, had one adjusted to it which never could have belonged to it. Those works which were deficient in legs, feet or hands, nose, lips or ears, or portions of drapery, or other accessories, were "completed" by the chisel of a modern sculptor. At the outset, when, as yet, antiques were rare "finds," the most celebrated sculptors were asked to undertake the work. Thus a Marsyas, which one may see in a gallery at Florence, was restored by Michelangelo. When the Farnese Hercules was discovered, both legs were wanting. To supply these recourse was had to Guglielmo della Porta. At a later period the real antique legs turned up, and they took the place of those members which the modern artist had supplied. The Laocoon wanted a right arm: Baccio Bandinelli, at first, and then Agnolo Montorsoli, supplied the deficiency. To the latter sculptor we owe the left arm of the Apollo Belvedere; and Montorsoli also restored that statue of Hercules to which the name of Commodus was given in error, though it is still retained. In the French collection the Diana with the Fawn was restored by Barthelemy Prieur; the Venus of Arles and the colossal Jupiter, by Girardon. Unfortunately restorations were too often confided to sculptors of the least ability; but even the happiest renovations of the most gifted artists have frequently damaged the effect of the antique work. For this reason many of our most important classical monuments present a composite, not to say hybrid, character, calculated to lead astray the judgment of the historian and the art-critic, as well as to confuse and misdirect the artistic mind. Let us take, for example, some of the statues in the Louvre. The Discobolus has a head which may have belonged to a Hercules, and two modern arms. The head of the Jason is of a beauty superior to that of the body, but it does not belong to the statue; the left arm, and a portion of the right are restorations below mediocrity. In the wounded Amazon there is of antique only the head and the upper portion of the body. The lower portion, ably restored as it is, displays a robe flowing down to the feet, whilst the costume of the original must—according to a number of examples of the same type of statue—have consisted of a tunic reaching not lower than the knee. On the other hand the Polymnia in the same hall, has only the lower portion of antique workmanship, every part above the hips, coming from the hand of a modern artist. The so-styled "Bonus Eventus" is an Apollo of a very ancient type—the head and torso only being antique. This statue has been restored after a design on a Roman medal, hence a Greek god of the earliest epoch has been transformed into an allegorical divinity, belonging to the era of the Imperial Roman dynasty. A statue of a female, remarkable for the design of the drapery, the arrangement of which would seem to indicate that it belonged to a Diana, had neither head nor arms. Algardi, the Italian sculptor, bestowed upon it arms of bronze, a head of bronze also, adorned with a turban of Oriental character, and as a consequence, it has been named the Zingarella, or Bohemian Gipsy Girl! M. Félix Ravaisson distinctly tells us that, of the many Imperial Roman statues which his country possesses, in very few does the head really belong to the body which carries it. We are in fear lest the same startling statement should be made by this outspoken expert in respect to our own marbles! The admirable and justly celebrated Augustus itself is a composite of a splendid head of that emperor, and of a body draped in a toga, which belongs to an epoch more ancient and even more refined than that of the head. The sitting statue called Trajan, is composed of a head of Trajan, and the body of some Greek personage, as the costume and the feet-covering prove. Our worst fears are realised when M. Ravaisson stoutly declares that the same may be said of all other collections: "In every museum of antique marbles—no matter in what country—perhaps not one-half the heads of the statues properly belong to the bodies they surmount. In relics thus composed it is difficult for any one not experienced in this particular kind of analysis exactly to distinguish the heterogeneous elements of which they are built up."

This mode of "making up" a statue has proved a pitfall in the path of more than one art-historian. Three eminent antiquarian writers, Winckelman, Marini, and Visconti, have recorded that a certain statuette in the Villa Albani is a representation of Diogenes. In fact, how could one fail to recognise Diogenes in the statue of an old man with severe and dissatisfied expression of countenance, staff in one hand, in the other the porringer so often alluded to in the history of the cynic, and followed by a dog? That which Winckelman, Marini, and Visconti did not observe was, that the staff, the porringer, the dog, as well as the arms and legs of the statuette, were restorations. It was the modern restorer who had created almost all the characteristic portions of a Diogenes!

To the young artist especially, this misleading *mélange* is peculiarly detrimental. Amongst these heterogeneous fragments lie hidden many beautiful relics of the past. In the Louvre, for example, there are many beautiful works whose beauties are buried beneath the restorations which have "completed" them. In the "Salle des Caryatides" there is a colossal Alexander, which, to an ordinary glance, offers nothing specially good. This is because the head, the arms, and the legs are restorations; we miss seeing that the torso is admirably executed, and of the finest period of art; the general effect is mediocrity.

We cannot, however, undo the work of the restorers. The monuments of art which are treasured up in Europe, in museums, are known only in their restored shape. In this shape they have been described and figured in works to which even *savans* and artists turn for information. No one would think of subjecting our antiques to an operation which would reduce many of them to unrecognisable fragments. We might, however, mould such portions of these works as are of undoubted antiquity. These portions might be cast, and would form a collection which would present in all their native truth and purity, the most beautiful remains of ancient art, which time has spared. In the proposed plaster-cast museum, the treasures of antiquity might be supplemented by others of a later date. The Middle Ages, the Renaissance, modern days have produced works which are not unworthy to find a place beside the gems of classic periods. What may be termed the nucleus of plaster-cast museums exists in London, Berlin, Dresden, Bonn, and Zurich. They are in course of formation at Moscow and Christiana. Paris does not possess a museum worthy of the name, and neither does London. In the French capital an attempt to establish one was made a very long time ago. Francis I. commissioned Primaticcio to buy antiquities at Rome, and to take moulds of the valuable pieces he could not acquire. This was a most enlightened idea whoever originated it. Primaticcio acted up to his instructions most faithfully: he even went so far as to make bronze castings from the moulds. These bronzes, after having successively decorated the gardens of Fontainebleau, Versailles, and the Tuileries, found a resting-place in the "Musée des Antiques." Poussin, under Louis XIII., renewed the laudable attempt of Primaticcio. He sent from Rome a large number of plaster casts, some of which were in existence in the French capital as late as a quarter of a century since. M. Ravaisson's idea has in a measure been carried out. The plaster casts exhibited in the Exposition of 1856 have been collected under a glass roof, in a court of the "École des Beaux Arts." There they are open to the inspection of the public at certain times. This arrangement does not please M. Ravaisson, who is of opinion that a museum of the kind ought to be always open to the public, with as few restrictions as possible.

Why cannot we have a plaster-cast museum? We might even go so far as to ask why cannot we have one in Manchester, Liverpool, Edinburgh, Glasgow, Dublin, and in every important town in Great Britain. There are difficulties in the way of course, but the advantages are greater than the obstacles. We might acquire a great many works by exchange with Athens, Paris, Naples, Munich, and elsewhere. The castings are easily multiplied. The museum would be one of the best, and certainly the least expensive of all our art institutions. We must, however, popularise the somewhat too exact ideas of the French proposer. By all means have the precious fragments of antiquity, in all their unassisted beauty, and nothing but the fragments, for the service and the educated taste of the artist and the art-patron; but let the general public have also the restored statue side by side with the originals. Fragments, however good, will not attract the general public. So, in order to teach the people, we must begin by pleasing the eye and interesting the mind. No good notion is any the worse for being popularised.

EDINBURGH IN EARLY DAYS.

ACCORDING to the account of Simon of Durham, Edinburgh in 854 must have been a considerable village. From the period of the cession of Lothian to the Scots, in 1020, the Castle continued to be a frequent residence of their monarchs. Margaret, the pious and worthy widow of Malcolm Canmore, died in 1093 in the Castle. The chapel within the ramparts, in which she used to worship, has not yet been improved off the face of the rock. David I. founded the Abbey of Holyrood, and granted permission to its canons to build a suburb westward from their church along the ridge of the rising ground, to meet *his burgh*, which by this time had advanced about halfway down the sloping surface of the hill from the Castle. The monks named the new town reared upon this privilege Canonsburgh, or Canongate, which latter title it still retains. Though built in a somewhat regular manner along the face of a ridge, with a wide street in the centre, then called Market-street, now High-street, running the whole length between the Castle and the Abbey, the houses must have been of a very mean order, for we find that for a considerable period after David's time they were thatched with straw. In the 16th century Edinburgh had become a place of resort from all parts of the kingdom, and the magistrates for the first time had the High-street repaired and paved, and other measures were adopted to remove the reproach of its deformity and filthy condition, which led Parliament to order the pulling down of a row of offensive tenements at the lower end of the town. There is in the British Museum a sketch in water-colours of the Edinburgh of the 16th century. The houses are represented as of one story, some roofed with thatch, others with tiles.

In 1610 the Town Council purchased ten acres of the lands of High Rigs, which they enclosed with a wall, and which, in 1618, were annexed to the burgh by Royal charter. These are the grounds now occupied by Heriot's Hospital, the Candlemakers'-row, Greyfriars' Churchyard, &c.

Houses were now being speedily erected beyond the walls and along the roads leading from the city gates. Nearly all these streets date back to the middle of the 16th century. By an Act of Parliament of 1621 it was ordered that henceforth the houses should be covered with slates, lead, or tiles. In 1677, in consequence of frequent disasters by fire, the Town Council enacted that no person should presume to build a house with wood, or cover a new building with thatch, but that in time-coming all houses were to be built with stones, and covered with slates or tiles, under a heavy penalty. There were few leading streets in the Old Town. In imitation of the Parisian architecture of the period, the houses were built very high, consisting of from twelve to thirteen stories, each story constituting a distinct dwelling, and frequently a distinct freehold, the access to each being by a stair common to the whole. One object for erecting such lofty houses was to save ground-rent, but the practice was carried to such an extent that an order of Council limited the number of stories.

From the middle of the 16th to the middle of the 18th century the city increased very little in any direction. In 1751, in consequence of the falling down of an old house six stories in height, by which a person was killed, the public attention was called to the state of many of the other houses, which, being in an insufficient state, were ordered to be taken down. On the site of these ruinous houses was erected the Royal Exchange, the foundation-stone of which was laid in 1753. In 1763 the drainage of the North Loch, a muddy lake on the north side of the Old Town, and the foundation of the North-bridge were commenced. The North-bridge spanned the valley, beyond which, in 1767, a new Edinburgh was to spring up, and "stretch its white arms to the sea." Craig was the designer of the new town, and by the year 1778, so successfully had the new building scheme been carried out, that its most prominent streets were built and occupied. The taste for new buildings being now excited among the citizens, the extension of the town to the north was rivalled by a similar extension towards the south, and George-square, sacred to the memory of Sir Walter Scott, rose into existence. The rapid rise of these southern buildings suggested the idea of opening up a communication to them across the Cowgate, the southern valley. In 1788 the South-bridge was opened for passengers. The construction of this bridge involved the destruction of one of the oldest stone houses in Edinburgh, which belonged to Sir Simon Preston, of Craigmillar, the Lord Provost of Edinburgh. In this house Queen Mary took refuge after the defeat of her party at Carberry-hill. The building areas on each side of this new bridge were in so great demand that exorbitant prices were paid for them. Some of these areas sold at the rates of 96,000*l.* per acre, 109,000*l.*, and some 150,000*l.* per acre. As years rolled on the city extended itself eastward, another bridge, the Regent, was flung across another valley, and beyond this the buildings of Waterloo-place were erected, together with the perhaps too conspicuous castellated jail. Once more the valley of the Cowgate "stopped the way." In 1827 a number of old houses were pulled down on the south side of the Castle-hill, and the foundation of George IV. bridge laid. This bridge spans the Cowgate, and consists of ten arches. An approach was also opened up, and a bridge built, on the south-west side of the Castle-hill. (All the bridges mentioned above would in London be denominated viaducts.) The Dean-bridge, consisting of four lofty arches, leads across a filthy river known as the Water of Leith, to a new suburb, which is yearly increasing in its dimensions. A short time previously to this Stock-bridge, consisting of a single arch, was constructed across the same river, and another suburb sprang up on the site of the property of Raeburn, the celebrated portrait-painter.

"Westwards the course of empire holds its way,"

and westwards, as well as southwards, Edinburgh is trending. The Grange, which a few years ago was the thickly-wooded park of the old Grange-house, is now covered with villas, and beyond the Grange the houses stretch away for nearly a quarter of a mile. Eastwards the city has made many attempts to go, but beyond the Royal and Regent-terraces, has achieved but slight success. Northwards little progress has been made of late. When the sewage fields of Dalry on the west, and those of Portobello on the east—both of them veritable "Maremmas," reeking with plague and pestilence—are swept away, Edinburgh, doubtless, will still further, and in new directions, extend her borders.

The above brief sketch of the rise of Edinburgh has been suggested by a letter in the *Builder* of March 28th, 1874. The antiquary and the archæologist may regret many of the modern "improvements" of Edinburgh, but on the whole they have proved beneficial. John Ruskin, speaking many years ago in the hall of the Philosophical Institution of Edinburgh, said, "Verona is the finest town to look into; Edinburgh the finest to look out of." This was paying but slight compliment to the architectural features of the Scottish capital; yet, apart from them the dictum is true. Stand on the bastions of the Castle or climb to the breezy summit of Arthur's Seat and look around,—

"Traced like a map the landscape lies,
In cultured beauty stretching wide;
There Pentland's green acclivities,
There ocean with its azure tide;
There Arthur's seat; and gleaming through
Thy southern wing, Dunedin blue!
While in the Orient Lammer's daughters,
A distant giant range are seen,
North Berwick-Law with cone of green,
And Bass amid the waters."

So sang David Macbeth Moir, the "Delta" of *Blackwood* forty years ago. It would seem that the site of Edinburgh is of such a peculiar formation that it defies stone and lime, and the vagaries of architects and builders, to destroy its beauty.

ARCHÆOLOGY IN ROME.

At the last *conversazione* of the British and American Society, Mr. Pullan gave an account of his exploration of the west coast of Asia Minor, from the borders of Caria to the Troad, a distance of 200 miles. In the course of this journey he visited the sites of several temples, the chief of which were those of Apollo Smintheus, in the Troad; Bacchus, at Teos; Minerva Pollias, at Priene; and that of Apollo Branchidæ, near Miletus; and reported to the Dilettanti Society upon the desirability of excavating the places mentioned. These temples we exhumed between the years 1863 and 1870, and found all of them to be of the Ionic order, and that of Priene in a remarkably fine style. The sculptures found there are now in the British Museum. Mr. Pullan added that it would be interesting to his audience to learn that there was a gentleman present who had excavated on the site of the fourth temple mentioned, viz., that of Apollo Branchidæ. Mr. Thomas, who was sent out last year by Baron Rothschild, with two companions, for the purpose of digging for sculptures, would give some account of his excavation. Mr. Thomas proceeded, with the aid of a series of photographs, to explain his operations at the temple at Branchidæ, and stated that he subsequently visited Priene, where Mr. Pullan had, in 1870, left walls and columns standing to a certain height, but that the natives had overturned some of them in order to obtain the lead and iron used in the construction of the temple. On Friday, 17th, there was an excursion to the circus of Maxentius. Mr. Pullan, in explaining the chief features of the building, began by saying that it was difficult, even for English people, who were addicted to "sport" of all kinds, to realise the passion of the Romans for the races of the circus, owing to the circumstance that these races were sanctified by religious ceremonies. We could not well imagine the feeling produced by the combination of zeal for religion and a zest for the race. The expression, "*Panem et circenses*" became proverbial. The Romans derived their games from the Etruscans, and originally from Lydia; hence the games were denominated "Ludi." There were seven circuses in Rome; that of Maxentius was the most perfect, and the chief features are still visible, among them the *spina* or central longitudinal division, with its goals, one at each end. In the centre of every circus was an Egyptian obelisk; that from this circus was now in the Piazza Navona. There also remained the *carceres*, or cells, from which the chariots started; the *precinctiones*, or places reserved for spectators, consisting of rows of steps and seats all round the building; the emperor's seat, which communicated with the adjoining villa by means of a passage. The circus and the adjoining tomb and temple of Romulus were excavated by Nibby, for Prince Torlonia, in 1825. The party subsequently visited the church of St. Urbani, an interesting example of a temple converted into a church; the pseudo grotto of Egeria, and the tomb of Cecilia Metella.

NEW RAILWAY WORKS AND BUILDINGS.

The proceedings at the half-yearly meetings of the railway companies which have been held during the past few weeks, and which have now been brought to a close, show that as respects several of the leading companies very extensive new works are about to be undertaken during the current half-year, involving an outlay of many millions sterling. In addition to the enormous expenditure which the London and North-Western Company have incurred during the last one or two years in new lines, and other works, together with new and enlarged station buildings, the proprietors, at the recent meeting, voted a sum of no less than 3,100,394*l.* for still further works, and new rolling stock. The sum of 1,939,788*l.* of this large amount is for the new lines, and other works, authorised by the Act of 1873, and the Holyhead Harbour Act; whilst 860,606*l.* are for intended new and enlarged stations, additional sidings, and other accommodations, and new works of a miscellaneous character. Beyond this expenditure, 300,000*l.* are about to be laid out in new engines, carriages, and wagons. Amongst the principal items in this prospective large expenditure, 300,000*l.* are for widening the line from Bletchley to Roade; 40,000*l.* for widening the tunnel on the Bettws and Festiniog line; 40,000*l.* for a warehouse and branch line at Cardiff dock; 30,000*l.* for hydraulic machinery and cranes, at Garston dock; 27,500*l.* for engine-sheds, at Abergavenny and Cannock Junctions; 21,950*l.* for new rail mill furnace and signal-making machinery at Crewe; and 10,000*l.* for the improvement of the New Street Station at Birmingham. There is then the sum of 169,656*l.* set down for additional siding and general station accommodation at several places enumerated along the company's lines, and 134,000*l.* for the purchase of land for the purpose of carrying out the works. Beyond this expenditure, the shareholders agreed to subscribe, individually, a large sum for new church and school buildings at Crewe. The report stated that the rapid growth of the works at Crewe, and the requirements of the Elementary Education Act, necessitated an increase of accommodation for religious and educational purposes at Crewe; and as the directors had no power to apply the company's funds to such objects, they had no alternative but to appeal to the shareholders to assist them. In addition to the above-named expenditure, the company have two Bills before Parliament, seeking powers to construct new lines and works, at an estimated outlay of 1,666,000*l.*

The Midland Company's report shows that this enterprising and spirited body are still expending a heavy amount in new works in addition to the enormous outlay which they have been continuously incurring for several years past. The capital expenditure during last year was no less than 3,000,000*l.*, and the estimated further outlay for the current half-year is 1,270,000*l.*, of which 571,000*l.* are for lines in course of construction, and 100,000*l.* for subscriptions to other railways, and contributions to joint lines. In addition to this intended expenditure, the company are applying to Parliament for powers to construct other new lines and works at an outlay of 3,573,000*l.* Amongst the works intended to be carried out during the present half-year is laying down another double line of rails between London and Bedford, a distance of fifty miles. The chairman stated at the meeting that the company possessed a capital of upwards of 50,000,000*l.*, and that their gross revenue last year was 5,387,312*l.*

The Great Northern Company are also about to expend a considerable sum in new works in addition to those already in progress, and also for rolling-stock; and for this purpose the shareholders at the recent half-yearly meeting voted the sum of 333,753*l.* Of this amount 80,000*l.* are for the erection of a large new station, and the construction of other works, at Doncaster; 29,000*l.* for the extension of the Peterborough, Essendine, Grantham, Newark, and Retford stations; 15,000*l.* for additional lines through Boston station; 11,000*l.* for the enlargement of the Bradford station; 5,500*l.* for the enlargement of the Lincoln station; 10,000*l.* for new lines and improvements at Ardsley; 13,500*l.* for locking apparatus at junctions and stations; 7,338*l.* for shunting-sidings at Peterborough; 6,000*l.* for an additional up-line at Grantham; 3,300*l.* for the enlargement of the Nottingham station; 7,000*l.* for additional lines at Leeds; and 2,000*l.* for reconstructing the Ratcliffe

viaduct. 10,000*l.* are also to be expended out of the sum voted in the purchase of the site of an intended new goods warehouse at Southwark; and 126,260*l.* are to be laid out in new rolling-stock. The report also states that much inconvenience is experienced in working the goods' and local traffic of the company to and from the City by the Metropolitan Railway, in consequence of the crowded state of that line; and that relief in this respect will be afforded by the new railway between Finsbury Park and Highbury, now being made by the company, for the carriage of their traffic *viâ* the North London line. It likewise adds that the building of the goods depôt at Farringdon-street is in progress, and that alterations of the King's-cross station at its north end have been commenced, with the view to improve the working of the local trains. The company is also applying to Parliament for powers to construct new lines involving an expenditure of 1,333,300*l.*

The Great Western Company are about to expend a large amount in new works of a varied character. The meeting of this company sanctioned the expenditure of 375,000*l.* in the construction of a new line between Paddington and West Drayton, and also the sum of 290,000*l.* for the conversion from the broad to the narrow gauge, and alterations of stations over a portion of the main line between Swindon and Bristol. Beyond these items of expenditure, 90,000*l.* are to be spent as follows:—25,000*l.* on the extension of workshops and machinery at Swindon; 21,000*l.* in additional siding and station accommodation at Paddington, Oxford, Kingsland, Stratford-upon-Avon, and other places; 25,000*l.* on the Bristol Port and Pier; and 15,000*l.* in locking apparatus at junctions and stations. Added to this 120,000*l.* are to be spent in new rolling stock, making a total expenditure during the current year of 870,000*l.* The company are also applying to Parliament for powers to construct new lines, including a railway to their goods station at Stourbridge; and also for alterations of levels and works of certain lines of rails on the part of their railway between the eastern side of Green-lane-bridge and the western end of the Bishop's-road Station, at Paddington. The estimated cost of these several proposed new works is 500,000*l.*

The shareholders of the London, Brighton, and South Coast Company at their meeting sanctioned the expenditure of a heavy sum on new works and undertakings, and also on new rolling stock. The intended expenditure includes 75,000*l.* on the Portsmouth Waterside Extension, which is to be constructed jointly by the Brighton and South Western Companies; also 25,000*l.* for interlocking points and signals; 65,000*l.* for new steel rails on the Main and Metropolitan lines; and 50,000*l.* for stations and sidings. The intended expenditure on new rolling stock is 235,000*l.* With respect to this item of expenditure the report says that the continued growth of Brighton and other watering-places on the coast, the constant extension of building at suburban stations, and the increased facilities given by reduced periodical tickets, improved train service, ample third-class accommodation, and otherwise, all tend to increase traffic, and that it would be unwise not to anticipate and be prepared for a further large increase, and that accordingly the locomotive superintendent estimated the probable additional requirement for engines, passenger carriages, and wagons, at the sum above named. The aggregate expenditure which the shareholders sanctioned is 450,000*l.*

The South Western Company at their meeting agreed to commence the construction of the Ascot and Farnborough line, and it also appeared from the proceedings that the engineers had been directed to prepare the necessary plans and estimates for the Portsmouth Waterside Extension, which the company are about to construct in conjunction with the London and Brighton Company.

At the meeting of the North Eastern Company, the chairman stated that the directors were going to spend nearly half a million in making additional sidings and other accommodation. It also appeared from a further statement of the chairman that an immense amount of capital is now being expended in new rolling stock.

The directors of the Manchester, Sheffield, and Lincolnshire Company report that the estimated expenditure during the current half-year, on station extensions, sidings, and other works, together with new rolling stock, is 235,000*l.*; of this sum 40,000*l.* are for new station buildings at Sheffield, Guide Bridge, and Lincoln. The report also states that it is proposed to purchase the Free Trade Hall and other buildings of Manchester, for the purpose of erecting a new station on the site. The company are promoting a Bill for the construction of new railways, 25 miles in length, and also for powers to purchase certain other railways, the capital for which is 2,317,000*l.*

It will thus be seen from the figures given above, that on the several leading railways the extent of new works about to be executed must necessarily give employment to a very large number of artizans and others.

THE ASPHALTE AND WOOD QUESTION.

A FURTHER report has been made to the City Sewers Commission upon the Asphalte and Wood Pavements, by Mr. Wm. Haywood, C.E., their engineer and surveyor. The conclusions of this report are:—

"1. *As regards Convenience.* — That asphalte is the smoothest, driest, cleanest, most pleasing to the eye, and most agreeable pavement for general purposes, but wood the most quiet.

2. *As regards Cleansing.*—That wood may be kept cleaner than it hitherto has been, but will be more difficult and expensive to cleanse effectually than asphalte. That as both pavements require occasionally strewing either with sand or gravel, there is not much difference between them in that respect.

3. *As regards Construction and Repair.*—That asphalte and wood, taking all seasons and weathers into account, can be laid and repaired with about equal facility, but that the smallest, neatest, cleanest, and most durable repairs can be made in asphalte.

4. *As regards Safety.*—That whether considered in reference to the distance which a horse may travel before it meets with an accident, or the nature of the accident, or the facility with which a horse can recover its footing, or the speed at which it is safe to travel, or the gradient at which the material can be laid, wood is superior to asphalte.

5. *As regards Durability and Cost.*—That wood pavements, with repairs, have in this City had a life varying from six to nineteen years, and that with repairs an average life of about ten years may be obtained; that the durability of the asphaltes is not known, but that under the system of maintenance adopted, they may last as long as wood; that, contrasting the tenders for laying and maintaining for a term of years the two best pavements of their kinds, wood will be the dearest."

These remarks apply, in most cases, to asphalte and wood pavements generally, but are more strictly applicable to the compressed asphalte of the Val de Travers Company and to the improved wood pavement. They apply to streets of much traffic and in London, for where the climate and other conditions are widely different, different results, as regards safety and cost, &c., may be expected.

The following table shows the duration and cost of certain Asphalte and Wood Carriageway Pavements, according to tenders made by the respective contractors:—

Situation.	Description of Pavement.	Years to be maintained by Contractors.	Average Cost per Square Yard per Annum.
			s. d.
ASPHALTE.			
Cheapside and Poultry	Val de Travers (Compressed)	17	2 4½
Gracechurch-street	Ditto	17	1 10½
Finsbury-pavement	Ditto	17	1 7½
Lombard-street	Limmer (Mastic)	17	1 7½
Cornhill	Ditto	17	1 6½
WOOD.			
King William-street	Improved Wood	16	2 6½
Ludgate-hill	Ditto	16	2 6½
Portion of Great Tower-street and Seething-lane	Ditto	16	2 2

THE SOUTH LONDON MUSEUM.

A FEW weeks ago we noticed the intended immediate erection of the South London Museum, the funds for which are being supplied by Messrs. Clements. The arrangements for the commencement of the building are now almost completed, and it is definitely understood that the foundation-stone will be laid in June. The building will have two main frontages, one in New Kent-road, and the other in Gurney-street. Although not so large as was at first intended, it will, as at present arranged, have a floorage about the same as the National Gallery, and will contain several fine-art galleries, one of them being about 100 ft. long, by 40 ft. wide. It will also contain libraries, reading-rooms, coffee-rooms, and other like conveniences. Mr. Samuel Morley, M.P., agreed to become treasurer until the land was secured, and this having now been effected, he has resigned, having no local connexions with South London. Colonel Beresford, M.P., has now become treasurer, and will receive donations in aid of the building. The Bishop of Winchester has accepted the office of vice-president, which became vacant on the death of his predecessor, Bishop Wilberforce.

WHAT IS A HOUSE?

A RATHER singular action in connexion with the building of a house near the Crystal Palace came on for trial last week at the Lambeth County Court. The plaintiffs were Messrs. Davis & Nicholls, brickmakers, of Queen's-road, Peckham, and they sued the defendant, Mr. Nash, a gentleman residing at Rutland Villas, Crystal Palace-road, for 19*l.* 10s. 10d. for bricks, sold and delivered under the following circumstances:—Mr. Lane, a builder, was employed in building a house for the defendant, but the plaintiffs declined to supply bricks for the purpose unless the defendant gave his written guarantee for payment. This he did, in terms dictated by one of the plaintiffs, commencing, "Please supply Mr. Lane with bricks to build my house." It appeared that a garden wall had also been built, and on the part of the defendant it was contended that this was not part of the house, and that this guarantee did not extend to the bricks supplied to build the garden wall. The learned counsel for the plaintiffs urged that the wall was part of the house, saying that he had numerous authorities on the point; but he should ask His Honour to define the word "house."

The Judge: I shall do nothing of the kind. I shall take it to mean what the parties meant by it at the time, if we can ascertain what that was.

The defendant's counsel, in resisting the claim, said his case against the guarantee was that it was given when only the "house" was in contemplation, the garden wall being a subsequent "extra." The bricks claimed for were actually used in building the wall, and had been supplied after the defendant had withdrawn his guarantee; so that on one of two grounds the plaintiffs must fail. The guarantee did not include the wall; and if it should be held that it did, then the written withdrawal before the bricks were supplied for the wall absolved the defendant from responsibility, and the question was simply one between him and Mr. Lane, the builder.

Amongst the witnesses examined was Mr. Lane, the builder, who deposed to the foregoing statement as to the wall being an after arrangement. He added that his affairs were in liquidation, and that he had tendered the plaintiffs 8s. in the pound of this claim, which had been refused.

The Judge said he must nonsuit the plaintiffs, and order them to pay the costs.

THE CHURCH OF ALL SAINTS, PLYMOUTH.

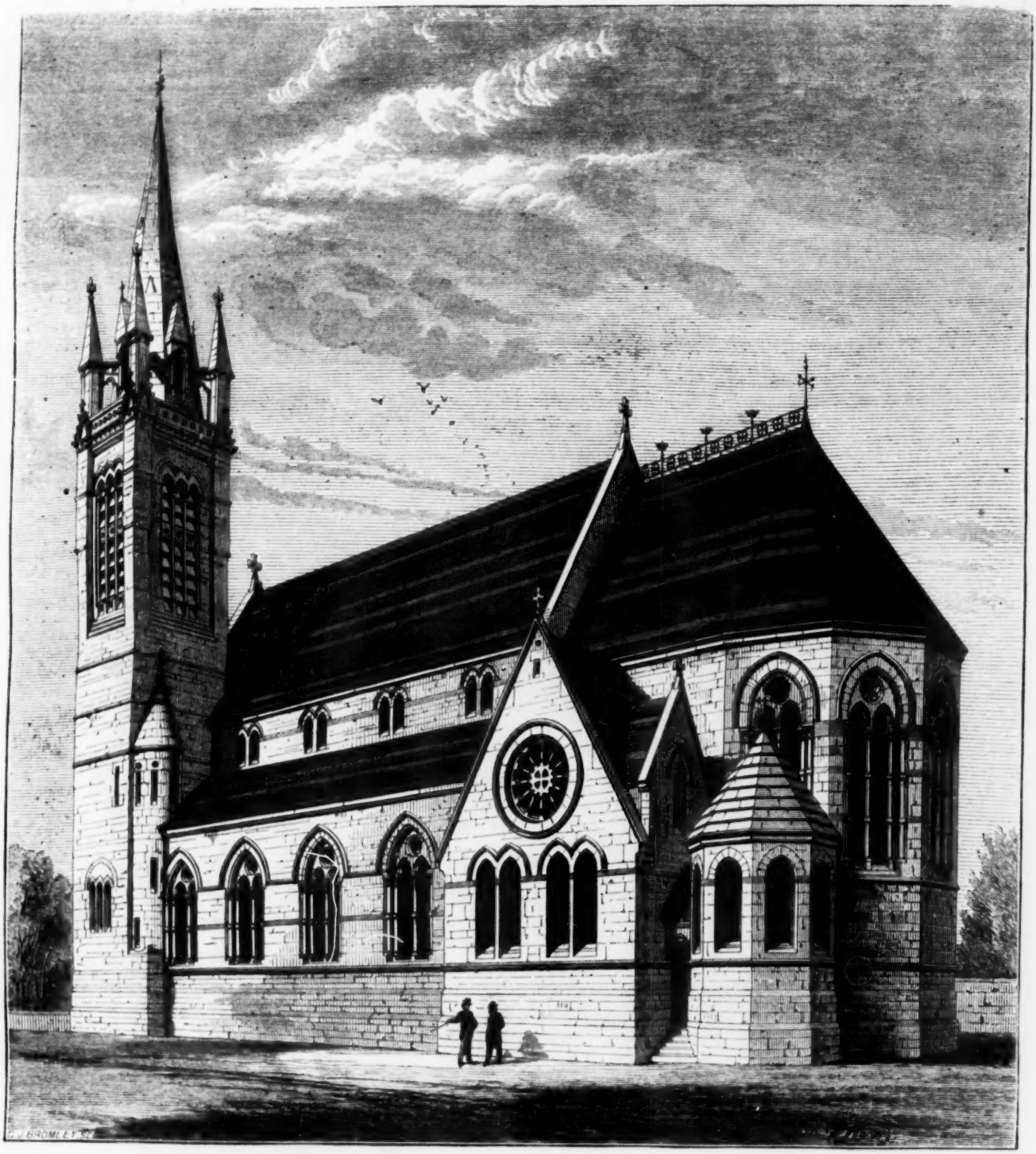
ALL Saints' Church, of which we now publish a view and plan, was commenced at the end of last year by Mr. Pethick from the designs of Mr. James Hine, architect. It will include a nave, 80 ft. by 28 ft.; north and south aisles; tower, with baptistery at south-west angle; chancel, with organ-chamber on north side and vestries on the south. The walls externally will be of wrought limestone, dark and light, with dressings of Box-ground and Portland stone.

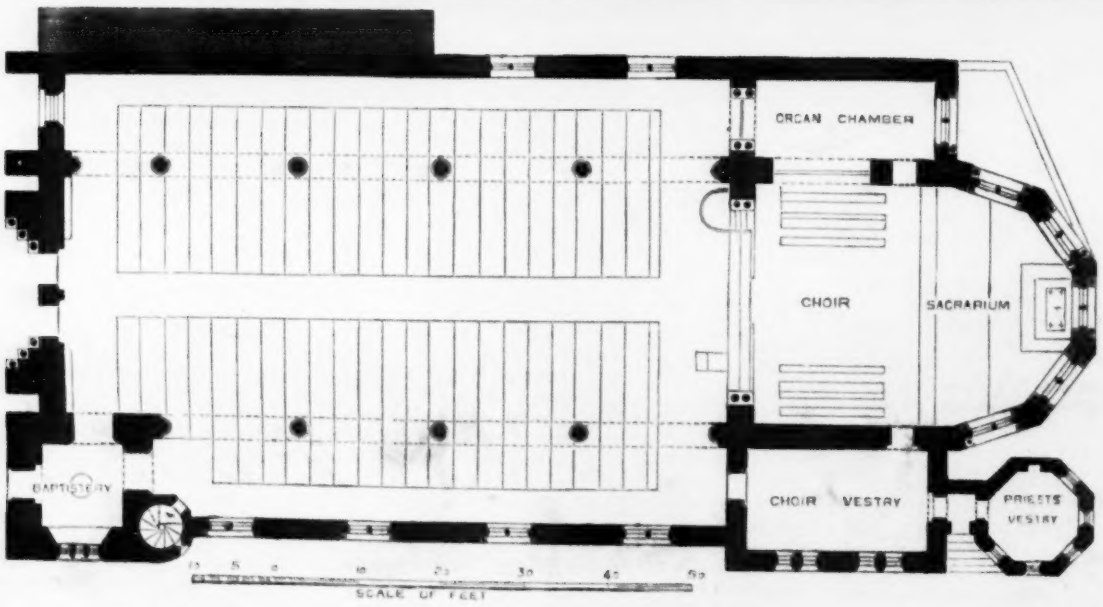
MEMORIAL OF THE DUCHESS OF SUTHERLAND, DUNROBIN, SCOTLAND.

IN our volume for 1872,* we published a view of the monument set up in memory of the late Duchess of Sutherland, in Trentham Church, and at the same time described the memorial which was about to be erected on a site within the policies of Dunrobin Castle.

The latter has only recently been completed, and we now illustrate it. It stands on an elevated site, and has been erected by the subscription of the clansmen and tenantry on the Sutherland estate. It is in the form of an Eleanor Cross, rising to the height of about 40 ft., and is built of white and red freestone, from the quarries near Dornoch. Within the canopy is a colossal bronze bust of the Duchess, by Mr. Noble. The work has been executed, from the designs of Mr. John Robinson, by Mr. John Rhind, of Edinburgh, under the direction of Mr. Fowler, of Dunrobin.

* See pp. 84, 87.





THE CHURCH OF ALL SAINTS, PLYMOUTH.——MR. JAMES HINE, ARCHITECT.

MEMORIAL OF THE LATE DUCHESS OF SUTHERLAND, DUNROBIN.——Mr. John Robinson, Architect.

CONSTRUCTION OF CONICAL ROOFS.

ON a previous occasion we reported briefly the discussion which took place at the Royal Institute of British Architects after the reading of Mr. Scott Russell's paper on the "Central Dome of the Vienna Exhibition Building."* We now add in full Mr. Scott Russell's reply, as containing much interesting matter:—

I will now endeavour to answer the points on which you have asked for information as concisely as I can. I am afraid when I say anything it may have the appearance of being too dogmatic, but I hope you will not accept it in that way. I feel deeply grateful to gentlemen who have deduced the points and exceptions and difficulties which they have done, because in answering them I think I shall give them the conviction that the cone possesses greater merit than I could have satisfied them it possessed if they had not been good enough to make these objections. I will now run through the matter as quickly as I can. In the first place, permit me to say that almost every one of the suggestions you have made, as to the alteration of the cone, and the different views of its theory, are perfectly true; and allow me also to say, I have confined myself in that article to the pure cone, because if I had gone out of the pure cone into the region of new structures, the quantity I could have laid before you is so enormous, that you would have been lost in a maze of confusion, as I was; and I had enormous difficulty in selecting out of the multitude of applications of principles of this kind the form of the cone at Vienna. You would imagine men of taste would be in love with the beautiful spheroidal form, and would not take the strictly straight cone when they might have the more beautiful spheroidal form. I will tell you how I came not to adopt it: I drew it out and discussed its peculiar qualities, and it was only the peculiar state of conditions which led me to adopt this form, which I think is not so beautiful as if I had made it spheroidal. A multitude of questions arose. It has been properly said, that time is a great element in practical construction, and engineers and architects are often obliged to abandon what they wish to do by want of time. Now, want of time and want of money are two things against the spheroidal dome. I will tell you why. The conical form has enormous advantages in construction. All the iron plates are plates of single curvature—straight one way, gently curved the other. What is the consequence? We can put between them rollers, we can manufacture them by hundreds, and bring them out ready for the building. Take a surface of double curvature; you have to heat it in the fire, you have to cut its edges to a peculiar surface, you probably encounter great difficulty requiring much time to surmount, and if you have to do it, it is always badly done; whereas my cone can be manufactured by machinery, on the most simple but still most perfect mathematical principles. The reason why I prefer an absolutely straight cone to the cone with curvature is this: Mr. Penrose has touched upon the point. I have shown you that all my cone longitudinally is in compression—that all my cone circular-ways is in tension. Now a straight column under compression is much stronger than a bent column, and therefore that part of the cone in compression is far stronger if it is straight. The next point has been very properly stated, viz., that the ribs of this cone are very much deeper than you would imagine, from investigation of the cone itself. You are correct. The ribs of the cone, as originally designed, were much shallower than they are now. Why were they altered? Simply for the reason Mr. Crace has stated, that all the conditions of the original design were altered. The cone was made for being put upon masonry or brickwork, which was to have been carried out to the edge of the cone, and the cone was to have been set upon that. Then the chance of the cone changing its form was very small, and these ribs or rings which have a peculiar function with reference to columns had no such functions when resting on masonry, and therefore were very small. These girders were enlarged, because it was agreed, from circumstances of time, to sweep away the whole of the solid foundation; and one fine morning I was told "you are not to have a wall to put the cone upon; therefore, you must stick it upon iron columns in the best way you can." Then to arrange the iron columns to carry the buildings, but to carry the cone, and that resting upon solid masonry foundations, are two things totally and entirely distinct. To sum up the whole question with regard to cone and girder, permit me to say, that these girders were by some people thought very strong when they were put up. Only there came a little wind after they were put up, and people who went there saw a slight vibration in the wind which satisfied them that the girders must come down if the weather were at all tempestuous. It was only after they got the cone to rest upon, that they became part of the cone. It was only then they acquired any strength at all. What they have is great strength in their place; out of their connexion with the cone have they none. If you take the great thickness of the girder, which is more than double what was designed, and then look at the length of it, 166 ft.; and then if you take the depth, not at the extreme end, but at the centre of gravity, where the strength is, you will find that these beams, which you think strong, are hopelessly weak to carry any structure, and then you will see that the beams had no strength till they became a part of the building. Coming more to the question of cones made of homogeneous metal, I may state that about three years before the opening of the Exhibition of 1851, I discovered that the cone was the successful structure which I have endeavoured to show you it is; and it is a curious fact that I owe to you, and the reception which you gave to me in some papers I read, the original ideas of this cone.

I read to you some thirty years ago a paper, describing a principle by means of which the greatest number of spectators could be arranged in a large building, so that they should all equally well see any spectacle they were brought together to see. I then, I dare say, satisfied you that you could make a building in which 10,000, 20,000, or 100,000 people could have sat together, all witnessing the same spectacle, and each one thinking he had got the best place in the room. That was solving a difficult problem, but it was leading you on to the construction of very large buildings with very large audiences. Twenty-five years ago I read you another paper, which you discussed with the same friendly energy as you have this,—viz., on the question how to combine the largest number of people in a building, so arranged that all sounds should reach the ears of those present in the most perfect and distinct manner. I also tried to explain certain principles by which echoes and influences which impede sound, and impede the clear hearing of separate sounds, might be removed. I hope I persuaded you that a building could be made in which 5,000 people could comfortably listen to a single speaker, or an audience of 25,000 people could comfortably and agreeably hear a musical performance, but at the same time I know you did not believe that such buildings were necessary. But such buildings now have become so. You have had the Exhibition building of 1851, in which 100,000 persons were collected at one time, and you have had arrangements for the performances of music by orchestras of 3,000 persons, which have been listened to by 25,000 persons. [*A Voice.*—You cannot hear.] I have a deaf ear, but I could hear comfortably with my deaf ear; and the orchestra which you have now in the Crystal Palace has carried out in the most perfect manner the theory I then gave you. I call attention to this theory of seeing and hearing, because it compelled me to think how I should roof this large building, and thinking over the problem you discussed, I arrived at this fact, "that if you are to have large amphitheatres to hold many thousands of people to view spectacles in London, in the way that the Romans did, you must make them with a cone, and I have invented this cone to cover your great buildings when you are pleased to build them, and if you make those great buildings in London—and you will have to do it, for buildings are growing larger every day—I expect you young men here will have to make roofs, not of 360 ft. span, but of 720 ft., conical roofs, and after that you will go on to make them 1,080 ft., and perhaps you will not go farther in your lifetime, but I undertake to say the task will be easy, and the cost what in those days will be called moderate."

Coming now to this small cone. The moment the idea had not only occurred to me, but was proved by investigation to be an idea in which you could use material much more economically than any other form I knew, I immediately developed the other form of cone to which you alluded. I saw that in my kind of building it would be possible to cut away all the dead matter of the cone, and put it into skeleton; and many years ago, in conjunction with an eminent member of your own profession, I designed a building in which all you have said was done: in which we threw away the entire homogeneous cone, in which we take away those *trusses* of which you speak, which are as old as wood construction. I have seen in the Rhenish countries the cone with wooden roofs applied to those semicircular Romanesque buildings, which for a time on the Rhine were competitors with Gothic architecture. I think I have seen wooden cones 250 ft. in diameter. In like manner you use iron girders, and do what you cannot with wooden struts, and you make a truss which requires no useless beams, no wasteful doubling, which is a perfect cone like my homogeneous cone, but I have always called that a skeleton cone; and, therefore, when you get these two circumstances together, if you are wise, you use a homogeneous cone for all it is good for, and a skeleton cone for all it is not good for: as it is not where columns are inserted below; and, therefore, you add these additional struts at the point where the local strain requires it. If you construct a cone with large foundations and continuous walls you find a solid, homogeneous cone is the cheapest and strongest form. If you make it on a small scale, where enormous strength is not required, you find the skeleton cone will answer all your purposes, and you can fill in with glass or any material you like. I like a homogeneous cone for this reason,—there is not one atom of waste. In common roofs you have slates and wood. The slates and wood do not carry themselves, but are a burden upon the structure. I have a large cone which justifies the use of iron plates, a half or three-quarters of an inch in thickness. I take these plates and form a roof of them alone, and then we have only to rivet and caulk the cone properly: and I believe it would stand without repairs for 100 years, and with repairs for 200 years; but you can modify this to any extent, and yet preserve to a large extent the principle of the cone. A gentleman mentioned the Exhibition of 1851 as having an iron dome proposed for it. You may remember that in 1851 many architects and engineers met and designed a building for the Exhibition. That was somehow eclipsed by Sir Joseph Paxton's wonderful invention, but allow me to say that a spherical dome can only be truthfully made by making curves of double curvature to every plate, and there is no difficulty except that you have to put your plates individually into the fire, and have them all hammered into ultimate shape. But I will show you a way of converting my cone into a dome at once, which was the very thing proposed in 1851. I would have built my cone in 1851: I had it all ready then. The cone I had ready was 400 ft. diameter. Why did I not? For this reason,—it happened I was one of the four persons who, with Prince Albert, originated the Exhibition of 1851. He insisted that I should be his secretary, and that I should be charged with the whole details of the Royal Commission. I had instantly to put all my plans into my pocket. I willingly assisted Sir Joseph Paxton to bring forward his. I told Mr. Henderson, Mr. Fergusson, and Capt. Fowke all about it, and they kept my secret, and nobody spoke about the cone till after Mr. Crace had prepared my designs for the Vienna dome.

About cones: I am glad to see the drawings of the cone which was then designed. That dome is what I would call a skeleton dome, First of all, I will show you an ugly dome, which I would (illustrating on board) make with a series of cones. If I were obliged to make a dome, and were ordered to make an ugly one, but retain, if possible, the same principle and the same economy which belong to my present dome, I would do it without incurring the difficulty of double curvature, in this way, by uniting a succession of cones of increasing taper. I should thus make what people call a dome. That you see is very ugly; but if I wanted to reduce the ugliness of it, then I could reconcile these patches by a filling of wood or other material, and thus I should have got a cone which, geometrically speaking, one would call perfect and beautiful. Now, in like manner, I was delighted when Professor Kerr suggested that we might have a great number of buildings of that sort, and ever since I studied the cone I have been astonished at the small number of buildings of that sort which exist. I am astonished to see in your buildings and in ours, the waste of

* See p. 167, *ante*. The greater part of the paper itself will be found at pp. 122, 147.

material you go to, when you might do without it. Suppose this to be an enormous square building; suppose you wanted to cover this with a roof. Why not make a parabolic roof? Make it a cone with four flat sides. Make it an octagonal cone, which you could do by cutting off the corners and putting in girders. Then you have no occasion for ties. Captain Fowke did that in some of his beautiful buildings at Kensington. You can make a series of structures, all self-contained, all without waste of material, and all under certain circumstances beautiful. Gentlemen have alluded to oval buildings. You find them immensely disposed to change their form, but there are remedies which consist of addition of material. You must put in material to counteract that tendency to change of form. I will now tell you a secret, which I am sure you will keep confidentially, and not allow it to go out of these walls. It was proposed to me, once upon a time, to put a conical roof over the ancient amphitheatre at Rome. That would have been an architectural desecration. I went to a friend, who was an architect, and asked him, "What would you advise? I do not like to refuse these people. I am fond of the cone, and I should like to see it carried out: but would it not be a barbarism?" My friend replied, "Don't do it." I wrote back that I would not do it; but I had gone into the calculation, and I found there would have been no difficulty in putting up a cone, moderately expensive, which would have preserved the building for 200 or 300 years.

A gentleman asked me whether I would like to take away all the columns, or a few of the columns in the Vienna building, and some of my friends have asked how the building is supported. I introduce that as an illustration of the difficulties I had to contend with. I was informed that my solid walls were to be taken away, and that I was to put my cone upon a series of iron columns. I was aware that they would press upon the margin of the dome very much. I did not expect the slabs of concrete put into the gravel of the Danube to give way; but, as earthquakes have taken place there, I argued the possibility of another earthquake happening after my crack building was put up. So I tried to make my cone stand even without continuous walls and foundations; and even in case of an earthquake coming, I considered what would happen if one foundation of a column gave way. "Very well," thought I, "if one foundation gives way, what must I do? I must carry the edge of the cone on the two adjacent columns, otherwise it will sway, and come down." Therefore I have put a strong rib all round the edge carrying the cone from one column to another. But two columns might have given way. When two or three columns give way, this beam becomes too long to carry the columns. What must I do? I have only to keep a good thickness of metal in the cone itself, and then I should be extremely near having a catenary; that is, it is in one case a stretched chain. Take the case of three columns giving way. You will ask me, if three columns gave way, what will carry the cone above them? Professor Kerr did not like my terming the catenary an inverted arch. I do not think that is very strong. But it is not that which carries my columns. Think of the position. Three columns are taken away. Remember, the three corresponding columns on the opposite side are not taken away; therefore there is the weight of the cone on the other side balancing the preponderating weight on this side, and all united together by the catenary surface, out of which you can make any number of links you like. The chain is there, and this catenary I am now showing you is the catenary or parabola which has the whole of these columns hanging on this side, and the corresponding ones balancing them.

I have one final word to say, and that is, we have exhibited in a railway station not far from were we now are, a combination of engineering talent, with architectural skill, which is seldom witnessed, and there is no doubt the St. Pancras Station, with its roof of 220 ft. span, and its noble frontage, is a model of which your profession and mine may be proud. Only I must remind you that, if you want to go further, if you want much larger spans, you would find the circular ground plan has enormous advantages for a railway station, which no construction of railway stations hitherto appears to have had; and I recommend to your serious consideration the construction of a very large circular railway station with a domical roof. You will find it has enormous advantages. When you take the matter into consideration, you will see if you are required to design very large buildings in London, such, for instance, as on the great Embankment taken from the Thames, you will find a circular plan with a conical roof possesses infinite advantages, and if it were necessary to make buildings, such as railway stations, twice as long and broad, which I think would be foolish, but you must do it if your masters order it, all you have to do is to put two circular roofs alongside one another instead of one oval, and the two close alongside will be much stronger than one oval roof equal to the area of the two.

"ENGINEERING—ITS EFFECT UPON ART."

THE above was the title of a paper read before the members of the Civil and Mechanical Engineers' Society, by Mr. Driver, on Friday last, at No. 7, Westminster Chambers, Westminster. The chair was taken by the President (Mr. C. H. Rew).

Mr. Driver commenced his paper by giving a definition of art. Art, he said, was old, and dated from the first mention of man. He contended that it was universal and essentially human. The results of the work of many birds, insects, and animals were artistic, but in carrying out their work they were but following a line of action they were unable to alter. Art was, therefore, human in that it was confined to man. All alterations of form and colour done with an intelligent idea of arrangement was art, and therefore all manufacture was art. Wherever man was found, there also was art to be found, in some shape or other. Good works of art were rarely imitations. The design or art of manufacture was the choosing and placing of form and colour so as to enhance all the other forms and colours to which it was opposed. Fine art was that in which the hand, head, and heart of man worked together; and the effect of that combination was seen in painting, sculpture, music, and poetry. As in art, so in engineering: it could be traced to the earliest period of the world's history; it could be taken to mean the art or science of construction; it was only another name for construction, and it was, therefore, universal. Nothing was too vast, nor was anything too small, to be undertaken by the engineer. A people might live without painting, sculpture, music, or poetry, although it would be a dreary world without them; but it would be utterly impossible to exist without the mighty science of engineering. It was the most necessary, and the root and foundation of all sciences. Neither the astronomer, the chemist, nor the artist could do without it. It was difficult to say how dependent the art of war was upon engineering. Art and engineering had been at all times coexistent, but while art was dependent upon engineering, the reverse was not the case. Many of the grandest artistic effects had been produced not so much by the architect as by the engineer, the roads, aqueducts, and other great works of the Romans fully proved what great engineers they were. In the grand old cathedrals there was to be seen the evidence of the engineering knowledge of our forefathers. Engineering had both a good and a bad effect upon art. As one of its good effects might be mentioned printing. The thoughts and the words of poets, philosophers, and other great men which at one time were confined to a very few persons, were now so nullified as to be brought within the reach of almost every one. By the multiplication of artistic works, both art, artists, and the art-loving public were greatly benefited. It was also true that there were evil effects upon art caused by engineering; but whatever they were they resulted from misapplication. When it ceased to be truthful, when it endeavoured to make an inferior material represent and pass for a superior material, then it had an evil effect. Speaking of the relative position of engineering and art, he said he did not wish to place the former above the latter. Art was the superior of engineering, which should be the servant of art. Art should supply the master-mind, and engineering should be a useful workman. In conclusion, Mr. Driver spoke in favour of combining the work of architects and engineers together. He considered that each should know something of the other's work, and he believed that it would be very advantageous for a practising engineer to have an architect as a partner, and *vice versâ*. He also believed that young engineers would be greatly benefited by giving some portion of their time to free-hand drawing.

A discussion followed the reading of the paper in which Mr. Usill alluded to the difficulty of the engineer to produce an artistic work, owing to the very low price all contracts were taken at.

Mr. Whittaker was in favour of architects and engineers keeping to their own work.

Mr. Haughton referred to the difference between the art of construction and fine art, with the latter of which the engineer had nothing to do. By familiarising himself, by the study of beautiful buildings and works of art, with an idea of what was a beautiful object, the engineer would be able to carry out his work in a more artistic manner. The buildings in London, he believed, would be erected in a superior style if the people of London were less deficient in their love of art.

THE HARVEY MEMORIAL AT FOLKESTONE.

SOME two years since a meeting was held at Folkestone to consider the desirability of erecting some memorial to the great Dr. Harvey, the discoverer of the circulation of the blood, who was a native of Folkestone, and it was decided to erect a statue upon the Lees. The vicar of Folkestone, however, had previously and for some years floated a scheme with the same intention, and considered himself not bound by the action of the second committee, in which opinion he was supported by a great number of the most influential inhabitants. The vicar's memorial was to consist of a stained-glass window and a memorial aisle in the old parish church where Dr. Harvey was baptised, and no doubt worshipped during the greater part of his life. Appeals were made to *every* medical man throughout Great Britain and Ireland, and the result was an immense response in the way of small subscriptions, ranging from 6d. to 2*l.* 2s.

The memorial window was opened on Thursday, the 9th inst., with great ceremony. It is of five wide lights, with handsome tracery in the style of the latter part of the fourteenth century, erected at the west end of the nave expressly for this memorial, there being no window previously in the church sufficiently large for the purpose of a national memorial. The subject of the window is "The Tree of Life," which rises from its roots in the middle light, and there hangs the crucified Lord, the healer of the nations, nailed to the tree, the branches extending throughout the whole window, covered with leaves and fruits, and many subjects of miracles of healing are brought in in large panels in the four other lights, while in a large central piece of tracery, above, a small "Annunciation" has been introduced. Of course there are two opinions as to the work.

The new memorial aisle is now in course of erection at the south side of the nave, in the same style of architecture as the large window, *i.e.*, the latter part of the fourteenth century, which corresponds with the date of the old tower. At the west end will be a large 4-light window, and at the side three 2-light windows and one 3-light, which will at present be glazed with temporary glazing. The roof will have moulded timbers, and will be decorated in polychrome, as will also the walls of the aisle when sufficiently dry. The architect engaged upon these works is Mr. Slingsby Stallwood, of Folkestone. Mr. Kemp, of Beaumont-street, is the artist who was intrusted with the execution of the stained glass.

SLAUGHTER-HOUSES AND FUTURE LEGISLATION.

AT a recent meeting of the Social Science Association, Dr. Hardwicke read a paper "On the Abolition of Private Slaughter-houses in Towns, and on Future Legislation for Noxious Trades." At the close of it he said:—

Having denounced in rather strong language what I conscientiously believe to be the eradicable evils of the present cattle-killing sheds, my paper would be incomplete if I were to omit to mention what are the essential features of an establishment to cope with them, and capable of reducing to a minimum all nuisances that at present beset, and will in future embarrass, the sanitary authorities of cities that neglect to legislate for civic purification. I am satisfied that noxious trades must sooner or later be all regulated under stringent municipal bye-laws, and that they cannot be left entirely to private speculation.

The site most convenient for the establishing of a public abattoir should be an open space or

field, not farther distant in the suburbs of a town or city than a short drive or walk; it should be suitable for one or more blocks of building, near a railway, water communication, or the cattle-market. The following buildings should be contiguous, but distinct from each other:—

1. Slaughter-house for bullocks, sheep, and pigs, with good water supply at high pressure; open ventilation, good drainage, asphalte floor, with convenience for the removal of blood, offal, and carcasses of animals.

2. A set of cattle-pens, or layerage, with store for fodder, water-trough, facility for cleansing, and the removal of manure, &c.

3. An engine and boiler-house, with tall chimney for carrying off gases, according to the necessity of trade, with sufficient steam-power for the tallow-melting tanks, greaseworks, bone-boiling, glue-making, &c.; hot water for washing and cleansing.

4. A store-house for hides, for bones, wool, hair, &c.; and the blood and offal, and all offensive materials, to be kept in covered tanks. The making of animal charcoal may be desirable, and other processes which I need not mention here.

5. In an adjoining part of the same premises, or field, should be the knacker's yard, with suitable appliances.

6. Dwellings for men and stabling for horses may have to be provided for those who have to be employed on the premises, or for carrying out the work.

The main points I endeavour to prove are these:—

1. The impracticability of attempting to reconstruct the old slaughter-houses in built-up parts of towns.

2. The impossibility of securing, in the present private slaughter-houses, ample air space, means of cleansing, and drainage sufficient to prevent them from becoming nuisances injurious to the health of people living in their vicinity—nuisances arising from the pollution of the air, drains, and subsoil.

The remedy I propose is the erection of abattoirs in convenient suburban localities, or where the objectionable practice of driving cattle in streets and thoroughfares can be avoided; where cattle can be kept sweet and clean in well-kept pens, duly provided with pure water, fresh air, shade in hot, and shelter in cold weather; where they are less exposed to violence and brutality of persons; and where the transport of blood, offal, hides, and tallow can be effected, without nuisance or complaint of neighbours, to places where they can be either sold, or preserved by methods free from objection, or utilised at once for the owners thereof.

And lastly, this is the most important recommendation, where, as I maintain, there is no difficulty in the inspection, by competent judges, of the cattle before they are killed, or of the meat supplied, either in carcass or otherwise, to the public markets, or to retail dealers.

In conclusion, permit me to remark, that it will neither be creditable to Parliament, nor to the local governing bodies of the metropolis and large towns, to endure the present state of things a day longer than is necessary. The Act, as I have said, will shortly come into operation, and a great achievement will be performed by simply remaining quiet and doing nothing at all. Should any efforts be made by persons interested in the prolongation of the Act, it will then, I urge, become the duty of this Association to make some representation to Government with a view to effectually putting a stop to a system so offensive, so injurious, and so repugnant to the feelings of all right-minded persons.

THE NEWINGTON BUTTS IMPROVEMENT AND THE NEW PARISH CHURCH.

THE scheme for the widening of Newington Butts, which some time ago almost threatened to collapse in consequence of a misunderstanding respecting the old parish church, the demolition of which is involved in the improvement, is now likely to be carried out at once, the sum of 5,000*l.*, which, under the Act of Parliament, is to be deposited with the Ecclesiastical Commissioners towards the erection of the new parish church before the old one can be touched, being now assured. When this is done the Metropolitan Board of Works will pay down the stipulated 4,500*l.*, as compensation for taking possession of the old church and site for the purposes of the improvements, when it is expected that the works will be at once commenced. Meanwhile, in anticipation of the demolition of the old church, the materials of the three houses in Kennington-park-road, which stand upon the site of the intended new parish church, will next week be sold by auction by Messrs. Stuart Barker & Son, and immediately cleared to make way for the new building. The new mission church (St. Gabriel's) which has just been erected in a portion of Newington Churchyard, near the old parish church, is now nearly completed, and is to be opened in a few weeks, and it is expected that this will admit of the Metropolitan Board taking possession of the old church, and proceeding with the improvements before the new parish church is completed and opened. The Ecclesiastical Commissioners, who, it is stated, are the owners of about two-thirds of the whole of the property in the parish of Newington, have subscribed 1,500*l.* towards the new parish church.

HEALTH AND DISEASE IN GLASGOW.

THE annual report for 1872 of the health of the City of Glasgow, by the medical officer, James B. Russell, M.D., and the report for 1873 on the operations of the sanitary department, by Kenneth M. Macleod, sanitary inspector, have been presented to the Health Committee for the information of the Lord Provost, magistrates, and others, and issued in a printed form.

The medical report is an elaborate and complicated one, in which new groups and districts are formed for statistical and other purposes by the reporter, who states that "in the course of time, when the statistics of several years will afford a safe average for each of these statistical subdivisions, it will become profitable to examine into the mortality of each apart. At present, however, no safe conclusions could be drawn from such a laborious inquiry."

The subdivisions with the five lowest death-rates in 1872 were—Blythswood, 19 per 1,000; Exchange and Kelvinhaugh and Sandyford, each 20 per 1,000; Monteith-row, 21 per 1,000; and Woodside, 23 per 1,000. Those highest were—Brownfield, 35 per 1,000; Bridgegate and Wynds, 35 per 1,000; High-street and Closes (East), 36 per 1,000; St. Andrew's-square, 37 per 1,000; and High-street and Closes (West), 39 per 1,000.

The different diseases which prevail in different districts of the city at different periods of life are all set forth in connexion with numerous tables, and much explanatory matter as to each group of districts, and each cause of death, so that no brief and useful summary of any value at present is possible, except that the moral of the whole inquiry seems to be that artificial conditions surpass all natural conditions in the causation of the high death-rate of Glasgow. In reference to the comparative vital statistics of different towns in Scotland, in general, there was more agreement in the marked points of the vital statistics between Glasgow and Dundee in 1872 than between any other of the towns specified. The general death-rates are not greatly different: they agree in having by far the highest death-rates in childhood. Glasgow has the highest mortality from diarrhœal diseases, from consumption, and from acute diseases of the lungs, on the west coast, and Dundee has the highest mortality from the same causes on the east, and in acute diseases of the lungs treads close on the heels of Glasgow.

Notwithstanding the constant water-supply from Loch Katrine, cistern collection, as appears from Mr. Macleod's report, is still largely used in dwellings throughout the city, and is the source of almost daily complaint. Of the cisterns the report says:—

"Some of these, on examination, were found placed on ceiling joists, immediately under the roof, of both large and small tenements; some in bath-rooms, some in dark, confined, unventilated water-closets, some accessible for inspecting and cleansing, others inaccessible for either, and all open at the top for the reception of whatever things, animate or inanimate, may fall therein; so that, in addition to the foul gas absorbed by the water, and the greasy-looking, dust-covered, cracked skin usually seen floating on the surface, complainants asserted that it was no rare discovery, on diving to the bottom, to find, in falsome combination with the water, the dissolving remains of rats and mice, dominant water-closet drippings, nameless creeping things, and sand, supposed to be street-sweepings, blown through the slates in dry weather, with their inseparable amalgamation of horse-manure, forming a mixture, apart altogether from the consideration of injury to health, abhorrent to imagination, sight, taste, and smell."

Unfortunately, the existing Public Health Acts do not confer absolute power on the City Sanitary Department to entirely sweep away this unsatisfactory mode of supply; but some owners, at the request of their tenants, backed by the friendly persuasion of the department, have arranged the supply direct from the main, which, with the unceasing flow from Loch Katrine, is the only pure and proper mode; while others have expressed willingness to adopt it, but find the strength of the original pipes in their property unequal to the pressure from the main, and have meantime protected the water from impurities by covering their cisterns and arranging for periodic inspection and cleansing. Tenants desirous of obtaining their water direct from the main do so at a very trifling cost, by merely carrying a connexion from the main cistern supply-pipe to their kitchen sink.

WORKS AT OXFORD.

THE main drainage works are being rapidly proceeded with by Mr. G. T. Acock, the contractor, under the direction and superintendence of Mr. W. H. White, the engineer to the Local Board. The first contract is nearly completed, and plans and particulars are being prepared for other portions of the works of which this contract forms part. The sewers in most of the principal streets and thoroughfares are made, and the town is again assuming its usual appearance.

The surface drainage works of the lower-lying district of Jericho are also done; the greater portion was completed before the winter season was over, thus preventing this part of the town from being flooded, as it generally is in winter time; and the citizens of Oxford will soon be able to congratulate themselves upon an undertaking which has now engaged the attention of the sanitary authorities here for more than twenty years, inasmuch as the time is not far distant when the city of Oxford will be freed from that obnoxious system of drainage which allowed all fœtid matter to be located in cesspits.

A short time ago the Corporation gave a large piece of ground to the Local Board,—in Hythe Bridge-street,—for the purpose of widening the street at this point, which is situate on the banks of the Isis, and where the road was extremely narrow; the old stone arched bridge was consequently taken down and its place supplied by a new cast-iron girder bridge, thereby widening the roadway from 17 ft. to 47 ft. As money was borrowed to carry out this work, Major Tullock, of the Local Government Board, held an inquiry, and, the necessary amount being granted, the works were immediately commenced by Mr. G. T. Acock, from the plans and under the supervision of Mr. Lloyd, the assistant surveyor to the Board. New buildings are in course of construction near the bridge, thus completing the houses in what now is a very fine thoroughfare leading directly from the Great Western and London and North-Western Railway stations to the centre of the town.

WESLEYAN CHAPEL BUILDING.

THE tenth annual report of the Wesleyan Chapel Committee (including the 55th of the chapel fund) has just been issued. It states that the ordinary income of the fund steadily increases. The amount received for this year from collections and subscriptions is 8,520*l.* 8s. 4d., or 211*l.* 8s. 10d. more than last year. The North Wales Committee report an increase also. During the year 362 cases have been sanctioned by the general committee, namely, 134 chapels, at an estimated cost of 212,448*l.*; 14 ministers' houses, 10,155*l.*; 26 schools, 18,366*l.*; 86 enlargements and alterations, 46,271*l.*; 74 modifications of cases previously sanctioned, at an estimated additional outlay of 23,330*l.*; 28 organs, at an estimated cost of 6,042*l.*, making a total as above, of 362 cases, at an estimated outlay of 316,612*l.* Schoolrooms were built in connexion with new chapels, and forming part of the same trust property, are not separately reckoned, and the erection of a new school upon land belonging to a chapel trust, when the whole outlay cannot be raised in twelve months, is treated as a case of chapel enlargement. The net additional accommodation proposed is 35,438 sittings (some of the new chapels being intended to supersede former erections). The temporary debt sanctioned, including all cases, is 49,386*l.*, being between 15 and 16 per cent. of the total outlay. The difference between the total estimated outlay of

316,612*l.*, and the debt allowed of 49,386*l.*, is 267,226*l.* The entire cost of all the completed erections and enlargements, regular and irregular, has been, for the past year, 250,482*l.* The debt left on them is 50,596*l.*, which is between 20 and 21 per cent. of the total outlay. Deducting this, and grants to the amount of 12,054*l.*, received from different funds, and allowing 2,578*l.* as the surplus proceeds from the sale of old property, there remains a sum of 185,254*l.* as the amount of local voluntary contributions. This sum is 18,739*l.* above that reported last year, and the largest amount raised for similar objects in any year except in 1867. If to 258,482*l.* (the cost of new erections and enlargements during the year) there be added 53,170*l.* which has been applied to the extinction of debt, and 950*l.* additional loans outpaid this year by the North Wales committee it will appear that the entire amount expended during the year on Wesleyan trust property has been 304,602*l.* The report consists of above 130 pages. It contains a great many schedules giving full particulars as to the various erections, &c., the contributions and donations, allusions to and explanations of various laws bearing on trust property, architectural descriptions, lithographs, and woodcuts of various new erections, trust clauses of deeds constituting a board of trustees for chapel purposes, &c.

EXPIATORY ÆSTHETICS, EDINBURGH.

ST. GILES'S KIRK.

SIR,—A considerable amount of uneasiness and dissatisfaction having been experienced recently in Edinburgh through some of her many charitable institutions having their funds and palatial buildings turned to questionable utility by the Merchant Company, while they have gainsaid the purpose and plain intention of those who left their money to endow these charities, which are bones of contention now, would it not be well, while the progressive educational spirit of the age is sweeping all before it, that some sort of æsthetic expiatory cleansing was at once made in the interior of St. Giles's? Seeing that the Merchant Company of Edinburgh seem no longer to require the lumbering galleries for the hospital children in West St. Giles's, it has been suggested that they should clear them away from obstructing the view of the expiatory Albany aisle, which Dr. Daniel Wilson informs us contains the two chapels as erected by Robert Duke of Albany, second son of King Robert II., and by Archibald, fourth earl of Douglas, in expiation of some foul deed—"their arms being prominent ornaments on the capital of the centre pillar, which is clustered, and very light and elegant. The ornamental sculptures of this portion of the church are of a peculiarly striking character." A view of this interesting and beautiful part of the interior of St. Giles's Kirk, with the galleries and pews removed, forms the vignette at the head of the "Chapter Memorials of Edinburgh," vol. ii., p. 157. Strangers often wonder that the empty and lumbering galleries should so long be allowed to hide and mar the attractive and elegant architecture of these old historic chapels and the adjoining aisle. A very small sum of money indeed would be required to remove the galleries on both sides of the pulpit, which is placed at the west gable. Allowing that only the spaces between two pillars on either side were cleared away, the symmetry of the groined roofs, and the tracery of at least six windows, would gratify the sight. It may be rather a new idea to make such improvements expiatory for those who seek to undo the work of their fathers, ever forgetting the amenity of Edinburgh. By the way, Dryden's lines I quoted and applied to this city are from his "Annus Mirabilis." J. K.

THE FUTURE OF CONCRETE FOR BUILDING PURPOSES.

SIR,—I perused with interest the condensed report of the paper "On Concrete Building," read by Mr. Drake, before the Civil and Mechanical Engineers' Society, a few weeks since, given in the *Builder* of the 28th ultimo.

It will be admitted by those who have devoted themselves to the study of the *possible* utility of concrete for building purposes, that the essay of Mr. Drake contains no original ideas upon the subject it treats of; nothing but what we have had practically illustrated in buildings erected with the apparatus patented by that gentleman in 1868. The paper abounds in information gathered from history, and from practical tests and experiences, and does credit to the author; but it suggests no new remedy for original and still existing evils attending every system of concrete building yet known to the world.

Mr. Drake was fortunate in evoking a discussion, which dealt, with crushing cogency, with the evils of present systems of building with concrete. Permit me to reproduce a few of the pointed sayings uttered in the course of the discussion.

Mr. Rew (chairman of the meeting) said,—"While concrete might be suitable for engineering work for heavy foundations, *it was totally unfit for any architectural purposes.*"* "*In an architectural point of view*," Mr. Pain said, "he considered it *a failure entirely*. . . . Anything in the way of architectural decoration which he had seen in concrete buildings had been either cement mouldings or cornices, and *the appearance was poor and wretched.*" Indeed, there seemed to be but one opinion concerning the "plainness and unsightliness" of concrete buildings as now constructed, among the gentlemen who participated in the debate which followed the reading of the paper. Even the writer himself made but a weakened defence of the system which he advocated, when its inadequacy from an architectural point of view was assailed. Mr. Drake, in the remarks which brought the discussion to a close, said:—"There was little or no difference between the brick-built and cemented house of the West of London and his concrete houses, which were also cemented."

I conclude that Mr. Drake considers the "cemented house of the West of London" either his *beau ideal* of an edifice, or about the highest style attainable by his concrete system.

The public are tired of those miserable cracked and blistered cemented fronts, whether seen at Llandudno or at the West of London. Neither will they long remain satisfied with a system of concrete building which *does not even pretend* to architectural style and elegance of a high character.

What we really require is a system of construction that will at once defy the corroding and destructive influences of the atmospheres of our large manufacturing cities and towns; that will satisfactorily meet the requirements of elaborate and ornamental architectural design'; and that will be far less costly than either brick or stone construction.

By the combined use of tiles and concrete, I believe all our present difficulties as to the cost, style, and durability of buildings may be overcome.

In another letter,—by your kind permission,—I will endeavour to explain the merits and *modus operandi* of a new system intended to meet the requirements of the times.

J. J. LISH.

* The italics are mine.

THE QUESTION OF A NEW STYLE MATHEMATICALLY CONSIDERED.

FROM time to time we are exhorted to be original and adopt a style of our own. There is a prevalent conviction that we have an infinity of choice, and consequently that there may be an infinite variety of styles. This betrays an ignorance of that fundamental science of proportion which underlies nature and art. The possibility of variation in ratio, though infinite, lies within definite limits, and the eye, as the ear, only concerns itself with a comparatively few simple relations,—that is to say, as marked and distinct in their character in the gamut of ratio. About one-half of the possible variations of ratio are either too divergent or too approximate in proportion to please. It is very difficult to make this subject clear to those who may not have studied the science of proportion: we will therefore attempt to illustrate this science, with reference to style, by the possibilities of variation of ratio in intercolumniation. Let us commence with the central or most symmetrical arrangement of equality, X : X, between interspace and column, 1 : 1. Then, in one-half of all the possible proportional relations between interspace and column the interspace will be less, in the other greater, than the column. But one-half of these possible relations have long since been regarded as too extreme, viz., one-fourth in which the interspace to column would exceed 3 : 1, and another fourth, in which the interspace to column would be less than 1 : 3. So that our choice is narrowed to the variations within the tenor half of the gamut of ratio, and by other reasons, and even within these limits our choice is restricted to the simpler features of ratio, viz., 1 : 1, 1 : 1½, 1 : 2, 1 : 2½, 1 : 3. The ratio of 1 : 2 was noted by the ancients as being that of mean variation from equality. The relation in which the column stood to interspace as 1 : 4 was regarded by the Greeks as extreme, and termed aereostyle. Now as there is but one gamut of ratio, and all phenomena are quantifiable, and a healthy taste is bound within these tenor limits, art can only utilise a few simple ratios which are the modes, or keys of style. These have already been recognised and adopted; therefore an entirely new style is an impossibility. W. CAVE THOMAS.

DISCLOSURES FROM THE NORTH OF ENGLAND.

SIR,—During fourteen months of 1871-2 I was surveyor to the Local Board of Spennymoor, within the Auckland Union, whose sanitary condition has been recently reported upon by Dr. Thorne. Finding that several pit-rows were without yards, and that all the refuse of the body and the house was taken to public cess-pits, partly sunk in the roadways of the back streets, and partly built up, to about 2 ft. above the roadway, I recommended to the Board in my first report an enforcement of their bye-laws, in requiring the appropriation of a yard to each house or pair of houses, the construction of privies, and an abolition of the open cesspools. The back street, on which I recommended the first enforcement of the bye-law, had more than 38 ft. 6 in. from house-wall to house-wall, thus allowing 14 ft. yard room to each house, and also a roadway for the scavenger. The thing was ordered to be done, but the order remained a dead letter on my quitting office.

One of my last acts as surveyor was to open up a main sewer in a back street to the cottages, in which lived Slane, Hayes, and the others who were six months afterwards convicted of murder by kicking, their victim also living in the same cottage-row. I do not know how long the sewer had been laid, but the Local Board had only existed seven years. The sewer consisted of 9-in. glazed pipes, and every pipe was as full of the black-cinder ash, with which the streets are made, as a sausage-skin is full of meat; and not one yard drain (6-in. pipes) was in connexion with the main sewer, nor ever had been. The drain-pipes were carried down to the sewer, but none of them entered a junction. In most cases there was no junction in the sewer, but the drain-pipes came against the unpierced side of the sewer, and had no connexion. In one case the junction was at the right place, but was turned skyward, and the drain-pipe touched the unpierced sewer-pipe below the junction.

I give these two cases as illustrating the sanitary uselessness of a Local Board such as that at Spennymoor. I could add greatly to the number of such facts.

Allow me to add an incident not of a sanitary character. On the day that Slane and Hayes were hanged, I went over to Spennymoor from Darlington for the purpose of testing the truth of some of the post-trial statements submitted to Mr. Bruce, the Home Secretary, of which I had strong doubt. When measuring the distance from the street-lamp to the passage in which the murder was committed, a woman, standing unconcerned at Hayes's door, held up unsolicited my tape-line. As I walked up the street, the builders' boy at my side informed me that that woman was the widow of Hayes—widowed that very morning by the hangman!

C. W. E.

New Theatre, Pera.—A scheme is on foot for providing Pera with a better theatre than the present building at the Palais de Cristal. The site in view for the new edifice is close to the Alhambra in the Grand' Rue,—the old Pera resort, the Jardin des Fleurs,—and the proprietor proposes to cede it for a term of ten years for an annual payment of T. 1,000*l.*, giving up at the same time to the contractors a quantity of material at present on the ground. The theatre contemplated would be commodious, but not a very costly building, and the project, in which M. Manasse, director of the existing French theatre, will take part, is favoured by some influential capitalists. To assist in carrying out the undertaking, it is intended to form a small company.

EXTENSIVE COAL-MINING OPERATIONS IN THE MIDLAND COUNTIES.

The reduction in the price of coal which is fortunately now taking place may reasonably be expected to continue until the price falls down to the minimum rates which ruled some two years ago. The general condition of the market and other circumstances combine to render such continued reduction almost a certainty, and amongst other causes which will in all probability contribute to produce this result, are the enormous mining operations which are at the present time going forward in the Midland coal-field, which is said to be the largest in England, extending from Leeds to Nottingham. In this district the greatest engineering activity in opening out new mines prevails. At Beestwood Park, the seat of the Duke of St. Alban's, and which adjoins Butwell Forest, shafts are being sunk to what is known as the "top hard," or Barnsley thick coal; and it is confidently expected that the seam will be reached at a depth of about 600 yards from the surface. Another immense coal-field at Linby, near to Newstead Abbey, embracing the immense area of 5,000 acres, is also being explored, the depth of the shaft being 500 yards. This new field is on the estate of Mr. W. A. Montagu Williams, of Melton Hall, Yorkshire. The dip of the Clifton Colliery, situated close to the town of Nottingham, is also about to be opened out, with a view to decide the point whether the coal measures proceed in the direction of the Vale of Belvoir. Again, at Newstead Abbey, the thick coal is being sunk in the centre of a district where the coal-field is supposed to extend under several thousands of acres; and the same seam is being opened out at New Watnall. An extensive field of coal is said to extend a considerable distance to the eastward of Mansfield, as well as to the north, proceeding towards Doncaster, near to which there is said to be an immense virgin field of coal. These two districts are also being opened out; and it is stated that the proposed Mansfield and Worksop railway will open out a large tract of mineralised ground, intersecting a straight line of collieries to the extent of between 30 and 40 miles. The output of the twenty-eight collieries in Nottinghamshire, which have been several years in course of working, is at the rate of 2,500,000 tons a year; whilst the production at the several new collieries is estimated at 1,000 tons a day, and it is calculated that the annual production in Nottinghamshire alone will shortly reach 4,000,000 tons, in addition to which there will also be an enormous production from the many thousand acres constituting the Doncaster coal-field. It is, therefore, not too much to say that in all probability the supply in the London coal market will very shortly be both abundant and reasonable.

A PARK LEFT TO NATURE.

Our suggestion in this direction has been echoed in several quarters. Amongst other advocates, the *Morning Advertiser* says:—

"Who does not recollect some such garden, with its privet hedges and moss-grown paths—the garden where the sweet peas twined round the broken sundial, and great blackbirds whistled in the apple-tree over the tumble-down old seat; where the thick grass was spangled with daisies, and violets hidden away under the laurel bushes, and sturdy wallflowers formed their harmless *chevaux de frise* on the top of the lichened stones that were the boundary of the tangled wilderness of scent and colour? This is the sort of garden that inspires the poet. This was the garden Hood remembered, with its 'roses red and white, the violets and lily-cups, those flowers made of light!' Here were 'the lilacs where the robin built,' and 'the fir-trees dark and high'; and there down by the laburnum it was that he 'was used to swing.' This is the kind of garden that Cowper immortalised in 'The Task,' that forms the background of many a one of Tennyson's delicious little lyrics, and affords a text to Wordsworth for some of his most charming verses. But there is absolutely no poetry in the modern garden, which at best but apes a kaleidoscopic combination, and appeals to the most prosaic of our attributes.

Feeling all this so strongly, we repeat that we welcome *con amore* the suggestion of the *Builder*, that we should enclose yet another park, and, having done so, should leave it to Nature as much as possible. Let there be very little of that levelling and planning which is so fully carried out in our existing parks. Let the green hillock remain, and the undulating greensward be let alone. Let the wild flowers grow if they will, and let the furze and the heather flourish where they may. Other flowers we would have, but let them be of the good old-fashioned sorts. The rose-bushes should be rose-bushes—regular tangles of scent and thorns; and there should be patches of white pinks, and groves of hollyhocks, and thick laurel hedges where the birds might build. The experiment is worth trying."

IMPROVEMENTS AT ST. HILDA'S COLLIERY, SOUTH SHIELDS.

The present mode of ventilating St. Hilda's and Harton Collieries is by utilising the shaft of the latter as the down-cast shaft, and the shaft of the former as the up-cast, and in order to create a sufficient current to drive the ventilating air through the many and extensive workings of the two collieries, two large furnaces are kept constantly burning at the foot of the St. Hilda shaft to cause the necessary draught to force the air from Harton through the ramifications of the two mines. The furnace system of ventilating, though simple and very efficacious for pits of limited dimensions, has been found to be unequal to the requirements of the modern plan of extending the coal workings under ground. Of late years several inventions have been devised to drive a large refreshing current of air through the gas-loaded ramifications of the coal-mine, and of these the most simple and successful is the fan invented by Mons. Guibal, of Belgium. The workings of the Harton and Hilda pit have already extended so far underground in various directions that the proprietors have deemed it advisable to substitute M. Guibal's fan for the furnace mode of ventilating, and hence the important alterations now in progress. The fan is of a similar description to that which was erected at Pelton Colliery a few years ago, but will be the largest as yet designed in connexion with any colliery in this country, the diameter being 50 ft., and the width of the wheel 12 ft. This huge fan is intended to be driven at a speed of 50 revolutions per minute, and at this rate the velocity of the outside blades will be one mile and a half per minute, or 90 miles per hour. The fan is being manufactured at Messrs. Black & Hawthorne's, engineers, Gateshead-on-Tyne. Mr. George Forster, of Washington, is the contractor for the building works, which have been designed by, and are being carried out under the superintendence of, Mr. J. J. Lish, architect, of Newcastle-upon-Tyne, who is about to erect similar works for the Bedlington Coal Company, at one of their collieries in Northumberland.

THE TEXT OF SHAKSPEARE: THE GLOBE.

Men's minds are much exercised, in the present day, about the correct text of noted authors: we rush into the *Times* and get lost in a sea of advertisements; some court the well-established *Athenæum*, others "fit audience find, though few," in the *Academy*. Blessed shades of Academe, where we may learn about the earliest Accadian cuneiforms, and just smell the flavour of the last new novel.

Thus Homer has bequeathed endless controversies about the "shield of Achilles," and the true site of *old* Troy; though we now begin to suspect that there was an older Troy than Homer knew of, and that even Priamus did not build the *first* Troy, but feathered his nest in an older settlement.

Chaucer bids fair to beget a book for every line of his original production; we know what the "chaffing" school of Italy did for Dante, sifting out the bran (*crúsca*) from the genuine grain of their great author, of which school Boccacio, whom Chaucer calls "Lollius," was the first professor: thus originating the *De la Cruscan* academy.

We must follow suite for Shakspeare; but shall we take warning by the vagaries of our predecessors, or out-Herod them?

It is a sign of the times, arguing well for the beneficent reign of our gracious Victoria, that we can find time for it; even so was it in the time of the peaceful Augustus, and in that earlier period when arose the great Alexandrine school of Greek.

It appears to many people that speculative conjecture with respect to Shakspeare's text is now carried too far; it being sufficient to deal with palpable errors, rather than to indulge ourselves with speculative emendations.

Even with palpable errors there is, owing to altered customs and fluctuations in the meaning of words, a vast field to work upon.

In the case of the "Henry V." prologue we have an illustration; the particular passage runs thus:—

> "—— May we cram
> Within this wooden O the very casques
> That did affright the air at Agincourt?
> Oh, pardon! since a crooked figure may
> Attest in little place a million;
> And let us, ciphers to this great accompt."

The printed text of the first folio, 1623, has "*this Woodden O*," the last letter or figure being represented by a capital "*O*" of the ordinary *italic* type, just as in the next line but one, where we have "*O pardon.*"

It cannot be admitted, as has been suggested elsewhere, that the actor would be at liberty to substitute the word "globe," or "world," and elide the "O"; and for several reasons: 1. It is quite unnecessary, for the audience would be as quick as the actor in catching the allusion, and comprehending the meaning. 2. It spoils the text, which abounds in puns. We have the wooden "O" which leads naturally up to a "crooked figure," and attests a million; thus 1,000,00[0], where the last nought is the complement of the whole sum, and makes the actors all "ciphers" in the "great account." 3. It leads to endless trouble, since we might argue for a wooden "hoop" just as well as for a wooden globe or world. It might be "ought" or "nought." One might even argue, by way of hair-splitting, that it reads "wooden shoe," playing on the word "show," for many persons sound shoe and show alike, with a digression on Chaucer's poor widow, who had but "oo sho." We can only guess what he meant; nor do we know how to sound it rightly.

The text reads "woodden O." Had the author meant "globe," he would have so expressed it. Take the analogous case in the "Tempest," act iv., s. 1:—

> "The solemn temples, the great globe itself."

Shall we strike out the word "globe" and insert an "O," because the meaning is so palpable?

A. H.

A BETTER MODE OF CONDUCTING CREMATION.

Sir,—There was a suggestion in the *Times*, some few days ago, that bodies should be consigned to the gashouse and retort. Without accepting this rough-and-ready mode of utilising the dead, I had proposed, many years since, that the following should be the mode of conducting cremation:—

1. That there be parallel rows of graves, having subterranean passages running between each two rows.

2. These temporary graves should be lined with brick or masonry, and covered with stones, so mounted that they could be easily rolled aside or over them.

3. That the dead should be lowered in shells into these vaults with the usual rites.

4. From these vaults the dead would be removed for cremation, withdrawn through the openings into the subterranean passages.

5. There would not only be proper arrangements for collecting the ashes, when desired, but for collecting the gas evolved in the retorts.

6. That the gas so generated should be conducted to, and feed the flame of, a lamp raised on high, by day and night.

7. That this lamp should be supported by a column of artistic design, or by a colossal figure in bronze or marble.

This plan would not only obviate any shock which the new system, if clumsily conducted, would produce, but facilitate examination in suspected cases of death from poison.

W. C. T.

New Buildings at Halton. — On the 8th instant, the new houses built at Halton by the Cottage Improvement Society were formally opened. There are, in all, thirteen houses, viz., ten in Lennox-street, and three in Priory-road, built of concrete by Mr. Richard Avard, of Maidstone, from plans furnished by Mr. George Friend, of Maidstone, architect. Each house contains five rooms (three of which are bedrooms), and is supplied with a range, with oven and boiler, and water drawn from a tap.

WOLVERHAMPTON NEW GRAMMAR SCHOOL.

THE foundation-stone of the new Grammar School building at Wolverhampton has been laid by the lord-lieutenant of the county, Lord Wrottesley.

The site is an eligible one, fronting the Compton-road, and bounded on one side by Merridel-lane. Here is to be erected a building whose scholastic hall will give space for 300 boys, with sleeping-rooms above for 40 boarders. Externally, the general character of the building will be the Domestic style of the fifteenth century, freely treated, to give a collegiate appearance. It will be built of brick, with facings of Kingswinford red pressed bricks; the dressings, string-courses, &c., being of Bath stone.

The principal front of the building, including the master's house, will be to the Compton-road. The head-master's house occupies the western, the great hall and class-rooms the eastern, side; the dining-hall and entrance-hall being in the centre; the principal entrance to the school being nearly in the centre under the clock-tower, and approached by a flight of steps to the entrance-hall, which is 19 ft. by 15 ft. From the entrance-hall is directly approached the great hall, a room 80 ft. long by 34 ft. wide, having an open timbered and panelled roof. This hall is 23 ft. high to the wall-plate and 42 ft. to the ridge, lighted by a range of windows the whole on one side, on the opposite by windows over the roofs of adjacent buildings, and by a lofty one in the eastern gable. There is in this hall upwards of 9 square feet each of superficial area allowed to 300 boys. The actual working-seat room that might be required for 150 or more would be obtained by placing three or four rows of desks the whole length of one side. In the centre of the great hall there is provided a room to be used, during school hours, as the head-master's room, or, as occasion may require, for a governor's room or library, or, on special occasions, as a stage or rostrum. It will be separated from the hall by an arch, and the level be raised some four or five steps, and fitted with curtains to draw and enclose when desired. From this room is provided on one side a retiring-room, on the other a lavatory, &c. A master's sitting-room will be placed adjacent to the entrance-hall. Three class-rooms are provided, each 22 ft. by 16 ft. 6 in., capable of seating forty boys each, and two 16 ft. 6 in. by 16 ft., each capable of seating thirty. These are approached by a corridor running directly from the great hall. These class-rooms are all arranged with side light, and have upwards of 9 ft. super. per boy. A writing-room entered direct from the great hall, is 56 ft. long by 21 ft. wide, arranged to seat 120 boys at 20 in. each, in four rows of desks and benches on one side of the room. There is a superficial area of nearly 10 ft. provided to each boy. From the entrance-hall, running westward, is a corridor connecting the master's house with the school, and from this the dining-hall is entered. It will be 36 ft. by 20 ft., with bay, which will give room for 100 to 120 to dine. It has separate entrances for boys' service, &c. The staircase for boarders to the dormitories is immediately opposite the master's sitting-room, and adjoining are lavatories and other conveniences. The first-floor plan shows over the dining-hall and entrance-hall, &c., three associated dormitories for 23 boys, while over a portion of the class-rooms, &c., provision is made for 11 boys in single rooms. On the second floor, over the entrance-hall and in the tower, provision is made for seven boys, which makes up the number 40. The building will be warmed by open fireplaces, fitted with Pierce's or other approved ventilating stoves, by which the air is admitted at the back and passed into the room heated to almost any desired degree. There will be further means of heating the great hall and dining-hall by means of coils in connexion with an apparatus in basement. Extracting ventilating flues are provided adjoining smoke-flues and fitted with Boyle's ventilators; while, in addition to the greater part of all the windows being made to open, Sherringham's ventilators for the introduction of fresh air will be provided, and thorough ventilation is arranged for wherever practicable.

The master's house is approached from the school by a corridor into the hall, thus giving access while keeping the house quite distinct. On the ground floor provision is made for a library 16 ft. by 14 ft., immediately adjoining the school corridor; drawing-room 24 ft. by 17 ft., with bay window (between these two rooms is the entrance and principal staircase); dining-room 23 ft. by 17 ft., also with bay; a large kitchen 20 ft. by 16 ft.; pantry, scullery, back staircase, &c. A serving-room for dining-hall is provided from kitchen to corridor. On the first floor are six bedrooms and dressing-rooms, bath-room, &c., with others above.

The architects, Messrs. Giles & Gough, of London, claim the following as the more especial and peculiar features of their design:—The complete separation of the head-master's house from the scholastic part, and yet the convenient position of the two divisions, and the accessibility between the same on all floors. The provision of single sleeping-rooms for the senior boys, each with a separate fireplace, and the ample space given in halls, class-rooms, &c. Also to the easy capability of enlargement, should this at any time be required, without interfering in any way with the arrangements now proposed, or with the working of the school while such extension was in progress.

CHURCH-BUILDING NEWS.

Huddersfield.—Almondbury Church has been re-opened, after having undergone extensive alterations both internally and externally, the work of restoration having extended over a period of about eighteen months, and entailing an expenditure of upwards of 4,000*l.* The nave and aisles have been restored, new oak seats taking the place of the old high-backed pews. The gallery has been removed, the stone pillars have been refaced, and the western tower, formerly in disuse, has now been opened with a stained-glass window, the present of Mr. J. F. Brigg, J.P., Huddersfield. The sum of 350*l.* has been subscribed by Mr. J. Hurst, J.P., of Wilshaw, 100*l.* of which are for the restoration of the chancel—a work which has not yet been commenced,—and the remainder towards securing open pews. Sir J. W. Ramsden, bart., has promised 1,000*l.*, which is to include the cost of a window to be inserted at the east end. Amongst the other improvements promised are the restoration of the Kaye Chapel, towards which the Earl of Dartmouth has promised 300*l.*, a memorial pulpit to be presented by the family of the late vicar, the Rev. Lewis Imes, and a large window by Messrs. John Taylor & Sons. An arcade has been erected after the style of the Kirkstall and Fountains Abbeys. Two new bells have been added, in addition to carved work on the exterior of the building.

Ipswich.—The church of St. Mary at the Quay, or St. Mary Key, Ipswich, has just undergone partial restoration. St. Mary at the Quay much needed the restorer's aid. The entire building was in a wretched condition. There have been two new platforms laid down, on which are ranged, temporarily, the benches formerly in use at St. Mary-le-Tower, which have been given by the owners. A few of the old pews are left in either aisle. The pulpit has been taken down and placed at a lower elevation, at the junction of the nave and chancel, while a reading-desk has been placed at the opposite angle. In the chancel some benches from the Old Grammar School, which were formerly in use at St. Mary-le-Tower, have been placed. A new east window has been inserted, in the Perpendicular style, to correspond with the rest of the building, and a reredos will be placed beneath when the funds are forthcoming. The organ, which formerly stood in a gallery over the west entrance, has been moved into the south chapel, opposite to the tomb of Tooley, the great Ipswich benefactor. The total sum expended has been about 250*l.*, of which, however, only about 150*l.* have been raised. Mr. Robert Smith, of Ipswich, has done the work, under the superintendence of Mr. H. M. Eyton.

Godalming.—The chapel of the new Charterhouse School at Godalming, forming the right wing of the quadrangle, has been consecrated. The new chapel has been erected by Mr. Philip Hardwicke, in completion of the block of buildings which the school now occupies on the hills above Godalming. The chapel is in the Second Pointed style, consisting of a nave and sacrarium, with an aisle on the southern side, and calculated to hold about 400. It is expected the school will reach that number of boys by the end of the present year. It has a wooden wagon-headed roof, and the windows on either side are filled with geometrical tracery of various patterns. They are nearly all adorned with painted glass, the east window containing the Crucifixion, being the gift of her Majesty the Queen as a governor. Other windows on the north and south sides have been given by Lord Dalhousie and the Duke of Buccleuch (governors), by the Master, by Dr. Currey, by the Head Master, by Old Carthusians on the Foundation, by boarders in the masters' houses, by the former day-scholars, and by one or two private persons, including the children of the Head Master. The reredos and decorations of the eastern wall, including a mosaic of the Last Supper, were gifts from the "gown boys," or collegers, and Mr. G. T. Clark; the sedilia, from former orators; the organ, for which 1,150*l.* have been subscribed by Old Carthusians, masters of the school, boys in the masters' houses, and friends of the school, is built by E. Schulze, of Erturt, and will be placed at the west end of the chapel in the course of a few months.

Bugsworth (Derbyshire).—St. James's Church was consecrated on the 6th inst., and is in the Early English style. The plan comprises the nave of four bays with south porch, chancel with organ-chamber, and vestry adjoining. The choir-stalls are in the chancel, which is approached by five steps from the nave. The north and south elevations have buttresses with coupled lancet windows. The west elevation is pierced with two traceried windows, and is supported by a lofty belfry. The roof of the nave has open framed principals, those of the chancel being more elaborate, and it is covered with slates of two tints. The church is built of random rubble wall stone from the local quarries, with dressings, &c., of Darley Dale stone. The chancel is laid with Maw's encaustic tiles, and the windows are of stained glass by Messrs. Lavers, Barraud, & Westlake. Accommodation is provided for 190 persons, and the cost about 1,300*l.* Mr. G. Napier, of Hulme, was the builder; and the architect, Mr. John Lowe, of Manchester.

Derby.—The ancient parish church of St. Werburgh, which has been closed during the last three months, for extensive alterations and improvements, has now been re-opened for Divine service. The appearance of the church is improved by the removal of the old pews, and the substitution of open stalls, which have been supplied by Messrs. Chapman & Son, of Hanworth, near Norwich. The west gallery, which formerly made the entrance to the church dark and gloomy, has been removed. The lighting has been re-arranged with a sun-light from the centre of the dome, acting as a ventilator. The whole of this part of the work has been completed by Mr. Thomas Crump, of Derby. The floor of St. Werburgh's was almost entirely undermined by badly-constructed and ill-protected vaults; these have been now sealed, and a considerable depth of concrete placed over the whole area of the church. The decoration was done by Mr. Cantrill. The chancel walls are diapered in Greek design. The reredos has been slightly altered, and is now coloured and illuminated. The organ pipes have been ornamented, and the ceilings of the chancel and body of the church are now coloured. The pulpit is of stone, with alabaster panels, which latter material was found in the church. The design is by Mr. F. J. Robinson, architect, and has been executed by Mr. W. Walkerdine.

Ozleworth.—After being closed for some six months for restoration, enlargement, and repair, the quaint old church of St. Nicholas, Ozleworth, has been re-opened. The restoration comprises the lengthening of the old nave about 10 ft., making additional room for about 20 seats; a cleansing of the outside from rough-cast and whitewash; and a new west end, in Early English. The window of this is to be filled with stained glass, in memory of the late Sir John Rolt, whose vault in the churchyard is covered with a granite slab of enormous magnitude and weight. Sir John contemplated the restoration of which we are writing, and which is now being done mainly through his son and successor, Mr. John Rolt. The floor throughout is laid with encaustic tiles. The tower has now a wooden roof, admitting the former belfry window into the church, and giving the effect of a lantern. The bell is placed in a chamber above this, and is rung in the church. The chancel is fitted with oak stalls and reading-desk, and a reredos of encaustic tiles is built against the east wall. The chancel windows, with the exception of the east window, are memorials to the Clutterbuck family. The architect was the Rev. W. H. Lowdor, of Liverpool; and the builder, Mr. Restall, of Bisley.

Burnage, near Manchester.—The corner stone of a new church at Burnage, near Manchester,

which is to be called St. Margaret's, has been laid. Burnage is a township and village in the parish of Withington, and the necessity for a church there has long been felt. Lord Egerton of Tatton gave a site for the proposed church. A house and garden for a parsonage have also been secured, and the church, schools, and parsonage will be in close proximity to each other, encircled by a ring fence. The church, the plans for which have been prepared by Messrs. Paley and Austin, of Lancaster, when complete will consist of chancel, nave with five bays, north and south aisles, tower and spire at the west end, organ transept, &c. It is only intended at present, however, to build the chancel and three bays of the nave and south aisle, providing accommodation for about 250. The contract of the work has been let to Mr. Winnard, of Wigan. The church will be built in the Gothic style, with Runcorn and Lynn stone, and is to be roofed with slate. The estimated cost is 3,855*l.*

Grindale, near Bridlington.—A new church has been opened here. It has been erected at a cost of over 2,000*l.*, by the Rev. Yarburgh Lloyd Greame, of Sewerby House. Messrs. Smith & Broderick, of Hull and Bridlington Quay, were the architects, and Mr. John Rennard, of Bridlington Quay, the builder. The style is Gothic, of twelfth and thirteenth centuries. The building consists of a nave with porch at the north side, and chancel with vestry at the south side. At the west end of the church there is a bell-gable, which is supplied with two bells from the foundry of Messrs. Taylor, at Loughborough. In consequence of many of the old stones belonging to the original Norman church being discovered in excavating for the foundations of the present church, the original design was altered,—notably there was the old Pointed chancel arch, which has been rebuilt almost as it must have stood in the original Norman church. Portions, also, of two Early English lancet windows have been rebuilt in the porch of the new edifice. The font of the original church, taken from the one pulled down, has been replaced within the north door of the nave of the present edifice. The walls of the church are built of brick, faced externally with Witby Cragmoor stone. The roofs are open-timbered roofs of fir, stained and varnished. Green slates cover the roofs. The edifice is capable of seating 150 persons, the seats being open benches of pitch pine,—those in the chancel being relieved with carving. The pavement is executed in three varieties of Mansfield stone, which is relieved with Normanton blue stone. The portion within the Communion-rails is paved with encaustic tiles. Remmington's heating apparatus is provided for warming the church.

West Clandon.—The Church of St. Peter and St. Paul has been re-opened. The church has been restored. The south window in the chancel is by Messrs. Hardman & Co., and is presented by Mrs. Dunkin. The pulpit is of Caen stone, with serpentine dark marble pillars, supplied by Mr. Moon, of Guildford. The reredos is also of Caen stone, with a Devonshire marble slab, Minton's tiles at the sides, and a brass altar-cross. The west window is ornamented with coats of arms of the several intermarriages with the Onslow family. The chancel arch is new, the apex being about 16 ft. high, and the present arch taking the place of a very insignificant one, which looks more like a disused doorway than anything else. This arch is worked in stone chalk. The windows generally are dressed in chalk, with an occasional infusion of Bath stone. The old vestry has been converted into a south porch, and a new and much more commodious vestry has been erected, on the north side of the chancel. The oaken seats have been renovated, and some new ones added. The church was decorated.

Annesley.—A new church at Annesley has been consecrated by the Right Rev. the Bishop Suffragan, of Nottingham. The edifice stands on a site in New Annesley. Mr. Musters contributed towards the cost of the new building the sum of 1,500*l.* Started on such a promising footing the fund was speedily increased, and orders were given for the commencement of the work. Mr. T. Graham Jackson, of London, was commissioned to prepare plans, and from these the building has been erected by Messrs. Halliday & Cave, of Oakham, Mr. Edwardes officiating as the clerk of the works. The church is situate on the summit of a hill, beneath it standing rows of colliers' houses, whilst close by are the schools and recently provided burial-ground. The structure is built of stone procured from the quarries of Sutton and Annesley, and the dressings are of Ancaster stone. The church is in the Early Decorated style of architecture, consisting of a nave with north and south aisles, a chancel, and an organ-chamber in the tower. There is to be a spire and a tower with six bells, the workmen being still engaged at the place in their erection. The roof is of stained Baltic timber, and the seats are of the same material, except the seats for the choir. These are of pollard oak, and in front there will be wrought-iron work decorated. The pavement of the chancel is of thick coloured glass from the establishment of Messrs. Powell & Son, of London, who have also supplied the stained-glass windows, which are on the right hand side of the chancel, and are to be supplemented by a third. The subjects of the two already put in are the Pharisee and Publican, the Good Shepherd, the Sower, the Wise Virgins, &c., each subject occupying a fourth of the space, with medallions of saints in the centre. We are informed that it is intended to fill up the whole of the windows of the church with stained glass, in accordance with the design of the architect. The subjects for the windows on the left will be taken from the Old Testament, and those on the right from the New Testament. The organ is being built by Mr. Willis, of London. The accommodation provided in the new church is for 320 persons.

COST OF PLANTS AND FLOWERS IN PARIS.

THE *Paris Journal* says,—Ladies who admire the shade, the flowers, and the rare plants of our parks and public walks, do you know what it costs the city to obtain these pleasantnesses for you? Here is the total of the little bill payable annually :—

	Francs.
" Bois de Bologne (entretien)...	387,000
Bois de Vincennes	270,340
Squares	545,220
Achat de plantes, fleurs, &c.	40,000
Entretien des serres.....	11,000
Total.....	1,253,560 "

[50,142*l.*]. You see there are no roses,—without thorns!

MANCHESTER NEW TOWN-HALL.

THE new Town Hall for Manchester is approaching completion; externally, the only unfinished features being the great centre tower in Albert-square and the Cooper-street tower. These are completed as far as contracted for; the former being finished to the first story, a height of 146 ft., the total height to which it will have to be carried being 266 ft.; and the latter stopping at present at 90 ft. high, having yet to be raised 90 ft. higher. The builders, Messrs. George Smith & Co., of London, have made rapid progress. Upwards of 1,000 men have been engaged on the building at one time. For more than twelve months upwards of 700 masons were kept in constant employment. The Albert-square façade, part of which we have already illustrated, is 328 ft. in length; the Princess-street front is 387 ft. 9 in. long; the Lloyd-street front, 350 ft.; and the Cooper-street end is 94 ft.—giving a total frontage of 1,159 ft. 9 in. The principal entrance is under the great central tower in Albert-square; there is another entrance-porch under the tower in Cooper-street, and in the Princess-street front there are two entrances adjoining each other, the one for the Mayor, giving access to his private rooms, and the other called the Tradesmen's Entrance, which will also be used as a general entrance for the public. The public hall is 100 ft. long, 50 ft. wide, and 58 ft. high. The hall is seven bays in length. There is a two-light traceried window in each bay, and they are separated by clustered columns, with rich foliated Early English capitals, which support the massive solid oak principals of the roof. The hammer beams have grotesque heads carved in solid oak, in which iron tie-rods are fixed to act as pendants for the gas. The roof is panelled, and the panelling is perforated so as to ventilate the hall, and carry off the vitiated atmosphere. At the Albert-square end of the hall, over the two doorways leading from the vestibule, there is a large six-light traceried window. The orchestra occupies the Cooper-street end of the hall. It is within a deeply-recessed arch, with clustered columns, and the mouldings are filled in with finely-carved roses and foliage.

The *Manchester Courier* gives the following statistics :—

The three staircases at the three corners of the building have been called the English, Irish, and Scotch staircases, from the fact that in each of the staircases so named, English, Irish, and Scotch granite have alone been used.

In the raising of the superstructure the following materials have been used by Messrs. Smith :—390,000 cubic feet of stone, 5,500,000 bricks, 60,000 cubic feet of timber, 133 tons of lead, 900 square feet of slating, 450 tons of iron girders, and 50,000 ft. of 3 in. and 9 in. deals; and the labour of all kinds, viz., plain and moulded, equals 1,500,000 superficial feet. The builders' plant used to carry on the work cost 20,000*l.*, consisting of three 20-horse power portable engines, three 10-ton steam overhead travellers, one 20-ton hand ditto, two 3-horse power steam overhead travellers, seven 3-ton hand travellers, eight saw-frames worked by steam (these were worked night and day for more than two years); eight steam polishing tables; one sandwasher worked by steam; two lathes, one for turning and the other for polishing stone, both worked by steam; and one circular saw-bench, also worked by steam. Ten tool sharpeners had to be employed, each man turning out about 600 tools, or a total average of 6,000 per day. 6,200 ft. of iron guttering and drain pipes have been used. Of Dennett's fire-proof arching 197,000 superficial feet have been used in the building.

The advance which has taken place in wages and materials since Messrs. Smith entered upon their contract for the erection of the building, in September, 1870, is worthy of note. Labourers' wages have advanced 17½ per cent.; masons', 12½ per cent.; and carpenters', 12½ per cent. The increase in the price of materials has even been still greater. Timber has advanced 25 per cent.; stone, 15 per cent.; lead, 50 per cent.; glass, 40 per cent.; iron, 100 per cent.; lime, 50 per cent.; bricks, 50 per cent.; coke, 350 per cent.; coal, 100 per cent.; gas, 15 per cent.; and coke cartage, 20 per cent. The effect of these advances is shown in the fact that for coke alone an extra sum of 1,500*l.* has had to be paid. From this list it will readily be understood that whilst their total account against the Corporation will amount to about 230,000*l.*, the large advance which has taken place in the price of work and materials since they undertook the contract will have caused a heavy loss to the builders, as the greater the outlay the greater would be the loss.

It remains to be stated that during the erection of the building Mr. Osborne has acted as clerk of the works, and Mr. Matthew Mackie as manager of the works for the builders, Messrs. Smith & Co. Mr. Alfred Waterhouse is the architect.

GETATABLE SASHES.

MANY arrangements have been devised to supersede the present method of removing ordinary sash-windows for the purpose of cleaning or reglazing, a method so awkward as to be almost impracticable. The last invention with this object in view has been patented by a gentleman, of Edgbaston, near Birmingham, Mr. J. A. Jones. It is extremely simple and inexpensive, and almost any existing window can be altered to the design.

The appearance of the sash when closed is the same as that of any other window, and the vertical action of the sash is also the same.

But this new window sash is made to open inwards and laterally, each sash being hinged, the top one to the right and the bottom one to the left side of the frame. These hinges attach each sash to a sliding piece, to which the cord is fixed; and upon the opposite side are two flush bolts, attaching the sash to a sliding piece also fixed to the cord. When it is required to open, say the lower sash, the instruction would be,—withdraw the top bolt and push the sash up, then withdraw the bottom bolt, the sash is then free, and can be drawn down and opened into the room.

After cleaning or glazing, as the case may be, the sash is raised and rebolted. If it is required to treat the top sash in like manner, this can be easily performed. Cheapness and tight-fitting are amongst the advantages claimed by the inventor.

In the case of wide heavy windows especially, care would of course be required to give sufficient strength at the hinging. The arrangement certainly deserves examination.

FLAXMAN'S WORKS.

THE beautiful and varied curves of the human figure are never so advantageously exhibited as when in proximity to the nearly straight and almost vertical lines of a Grecian portico, and a bright thought was accomplished when the authorities of the London University ordered the metal casts of the Gladiator and the Discobolus to be placed in front of the portico in Gower-street. Recently they have yet further enhanced the beauty of the portico, by bringing out from their treasury of art the group of Hercules and Hebe, by Flaxman; but unfortunately, this fine piece of sculpture is not cast in metal like the other two statues, but is in plaster of Paris, which will not resist the humidity of our climate, and if left exposed this noble work will be destroyed in a very few years, and be entirely lost to the world, for I believe no other cast exists of this restoration of the famous Torso Belvidere by our immortal sculptor. JOSEPH BONOMI.

LONDON SEWAGE.

MIGHT not the present main-drainage channels on either side of the Thames be made available to conduct the sewage inland instead of as at present polluting our river? J. K.

*** Doubtless: if the right places to receive it and the right mode of dealing with it could be agreed on.

SEWAGE OF TOWNS.

SIR,—The contests between filtration and irrigation have engendered irritation in big and little corporations. Gravitation from stagnation is not everywhere attained: innovations for preservation of populations must be gained; precipitation means purification of rivers now defiled. Administrations are seeking information to stay the hydro-hydra decimation in this our land. Let precipitation wed irrigation, the consummation will be *aqua pura* and rich cultivation; then generations' gratifications will revert to sewage pioneers throughout the nations.

R. T.

THE METROPOLITAN GRAND HOTEL.

SIR,—As architect of the above-named building will you allow me to correct one or two trifling errors that appeared in your description of it last week? The length of the frontage in Moorgate-street will be 186 ft., not 120 ft., and the depth of the building an average of 64 ft.; and instead of having four distinct elevations it will only have three, as on the fourth side it joins the houses in Moorgate-street. On the ground floor in Moorgate-street there will be two arcades, each 20 ft. wide, with shops on either side, each arcade giving covered access to the station in Little Moorfields in the rear. In consequence of a large portion of the basement being required for purposes of the railway which passes directly under the buiding, the whole of the kitchens and other domestic offices and servants' rooms will be in the Mansard roof, which is two stories in height, and from which the service will be conducted by means of hydraulic lifts. In the centre of the building is a large central hall lighted and ventilated from the roof, and surrounded by galleries on each floor giving access to the various rooms, somewhat on the principal of the old "hostelries," with the exception that it is not, as in their case, open to the air.

WILLIAM J. GREEN.

THE TRADES MOVEMENT.

Newcastle and Gateshead.—The joiners have come out on strike. The masters adhere to their offer of a compromise of ¼d. per hour advance, with the breakfast half-hour all the year round, or to have the question decided by arbitration; but the men persist in their original demand of 1d. per hour. It is said that not more than 200 of the 700 men who have come out are connected with the society, the remainder being altogether unprovided with funds, except in individual instances of thrifty men. Some of the less extensive jobbing employers have conceded the full amount of advance asked, but the large contractors show a determination to go no further than the offer of a compromise named above.

The Trade Unions and the Royal Commission.—A delegate meeting of the London trade societies has been held, at the Rose Tavern, Old Bailey, for the purpose of expressing an opinion as to the future action of the trades in reference to the Royal Commission appointed by the Government to inquire into the operation of the labour laws. Mr. Shipton, the secretary, stated that he had forwarded the resolution passed by the Trades Council, asking the Trade Union Parliamentary committee to reconsider its resolution not to give evidence before the Commission, to that committee, and had received a reply stating that the committee had decided to adhere to the resolutions already passed in reference to the Royal Commission. A resolution endorsing the action taken by the Parliamentary committee was then moved and seconded, after which Mr. Richardson moved the following amendment:—

"That this meeting of trade society delegates, hearing from Mr. Hughes that the Home Secretary has given his word that the Commission is not intended to delay legislation, and that the Government intend to legislate upon the labour question during the present session, advise the trades generally to give evidence before the Royal Commission."

Mr. George Odger supported the amendment, and it was ultimately adopted by a large majority.

ASSOCIATION OF MUNICIPAL AND SANITARY ENGINEERS AND SURVEYORS.

YORKSHIRE DISTRICT COMMITTEE.

THE first meeting of this branch of the Association was held in the Council Chamber of the Leeds Town-hall, on Saturday, January 17th, under the presidency of Mr. A. C. Morant, C.E., borough engineer for Leeds. Mr. Henry Alty, C.E., Keighley, was elected honorary secretary. Being the first meeting the business was of a routine character.

The second meeting was held in the Town-hall, Leeds, on Friday, April 10th. After the usual business had been gone through, the members visited several interesting engineering works in progress, and afterwards dined together.

A meeting will be held April 24th, when the members will visit the Metropolitan Pumping Station, Abbey Mills; the West Ham Pumping Station, to inspect the lime process and Major-General's Scott's process of converting sewage sludge into Portland cement; and Lodge Farm, Barking, where the phosphate process will also be in operation.*

STEALING FROM BUILDERS.

LAST week, a foreman carpenter, named Robert Shelton, and Charles Ramms, a joiner under him, were fully committed for trial to the next Middlesex Sessions by the Marylebone police magistrate, on the charge of stealing a large quantity of timber, the property of their employers (nominally), the Midland Railway Company.

The evidence adduced showed that the foreman Shelton, during the month of March, had to superintend the erecting of new fences and removing old ones on the Tottenham and Hampstead Line. That the other prisoner called upon the manager of a laundry at Highgate, and inquired if he were open to buy a quantity of timber for firewood. A bargain was struck, and the laundry people sent on to the works, and got the wood whilst Shelton, the foreman, was present.

The detectives, on apprehending the foreman, searched his house, and there found a further quantity of wood, alleged to belong to his employers.

Shelton asserted that he did not know the wood was stolen, and it was urged that foremen looked upon old wood as their right, to do what they chose with it, and beer was given all round from the proceeds. That it was a very old custom.

The money paid for the wood by the laundry people amounted to 11s. 4½d., and the police, not understanding measurement, weighed it to 8 or 9 cwt. The quantity found at the foreman's house was sighted only as a quantity.

The other prisoner urged that "it was all right."

The prosecutors on the other hand contended that it was "all wrong," and that it was the duty of the foreman to see that no timber, old or new, left the premises. That, if so, old materials would be but a cover for stealing new and valuable building goods.

Mr. D'Eyncourt said it was a matter for a jury to consider. It was time so ancient a custom of the right of workmen to take their employers' timber and sell it was settled.

Lydney Park.—Last week, the foundation-stone of this mansion was laid, by the Rev. W. H. Bathurst. Mr. David Wingate, in a few suitable remarks, presented him with a silver trowel, with the inscription, "Presented to the Rev. W. H. Bathurst by Messrs. Wingate, the builders, in remembrance of his laying the foundation-stone of his new mansion, 7th April, 1874." A bottle was laid in the wall under the foundation-stone, containing the *Times* newspaper of the 7th inst., and the coins of the present realm. Mr. C. H. Howell, of London, is the architect.

* For other meetings about to be held our advertising columns may be consulted.

Books Received.

Practical Instruction for Painting on China, &c. Translated from the French of A. Lacroix. London: Barbe & Co.

THIS can be regarded only as a trade book, and its other object is to show that M. Lacroix's liquid colours are very superior to the English ones. Nevertheless, it gives some useful information and instruction as to painting on china and earthenware, an art which many might pursue with advantage. We know an English lady resident in France who, being suddenly left a widow with small means, turned her attention to it, and makes thereby about 100*l.* a year in a ladylike and pleasant way.

A Handy-Book for Visitors of the Poor in London, with Chapters on Poor Law, Sanitary Law, and Charities. By CHARLES B. P. BOSANQUET, M.A. London: Longmans, Green, & Co. 1874.

MR. CHARLES BOSANQUET has long been a painful labourer in the field of social reform. Of late years he has devoted himself to the work of the Charity Organisation Society, of which he is the secretary, and the little volume before us is published by the Council of that Society. The subjects treated of include House-to-house Visitation, General Suggestions to Visitors, Poor-Law Notes, Out Relief and Special Classes of Cases, Relations with Charity, Sanitary Law in London, the London School Board, the Metropolitan Charities, Schools and other Class Charities, Provident Institutions, Pawnbroking, Loans, Workmen's Clubs, Emigration, and Migration. It will be found very useful by those who are anxious to assist in the work of the Society, and it may be expected moreover to increase the number of them by showing what good work there is to be done. The main object of the Handy-book is to prevent the misdirection of effort,—to make it as effective as may be, and this it will do if the advice it gives be attended to.

Will a Sewage Farm Pay? or, Theory combined with Practice. By Lieut.-Col. A. S. JONES, V.C., &c. London: Longmans, Green, & Co., 1874.

COLONEL JONES here gives the results of a two years' practical study of the sewage question; and, though not pretending to any special discovery or specific, he hopes to afford some slight aid towards a satisfactory solution of the problem. "In a sanitary point of view," he remarks, "my experience only confirms that of others that there are few more healthy residences than a well-managed sewage farm, or more unhealthy ones than any neighbourhood, whether town or country, in which sewage is allowed to ferment in a stagnant condition.

The motto of all who deal with sewage should be that of the policeman in a crowd, viz., 'Move on'; for Nature's great law demands that all dead and decaying matter shall as speedily as possible produce new life and be built up into fresh forms of vegetable and animal tissue. If man, the intelligent police who should facilitate the operation of the law, neglects his duty, the majesty of nature will assert itself through the process of fermentation to loosen the cohesion of sewage atoms in order that they may reach the vegetable life for which they are destined in the form of gas if they cannot do so as a liquid; and let us remember that the law of diffusion of gases will then operate without regard to the sufferings of animals who may chance to breathe an atmosphere more suited to the other kingdom of nature than to their own."

VARIORUM.

"A BRIEF Memoir of the Princess Charlotte of Wales, by the Lady Rose Weigall (John Murray)," is founded on letters addressed by the Princess Charlotte to the mother of the accomplished author, and her mother's recollection of occurrences in the course of a close intimacy. Her Majesty the Queen, to whom the book is dedicated, graciously added materials for amplification, and the result is a most charming contribution to the history of the time,—a delightful account of a pure life passed amidst impure influences. As Lady Rose well says,—"With every disadvantage of a neglected childhood and a loveless youth, with few good influences brought to bear on her in early days, she yet remained, as we have seen, upright, sincere, warmhearted, and truthful; surrounded by people whose

morality was governed by expediency, she clung to what she believed to be right; and neither in happiness nor in misery was ever swayed by the frivolous ideas or selfish designs of which she had witnessed so much."——"The Trial of Sir Jasper: a Temperance Tale in Verse, by S. C. Hall, F.S.A. (Virtue, Spalding, & Daldy)," some notice of which we have already given, has proved a great success, more than 40,000 copies, as we hear, having been sold. Encouraged by this reception, Mr. Hall has now issued a more costly edition of the book, a copy of which is before us, believing that it may thus find entrance into places where ordinary temperance tracts are seldom received. We have no doubt this will be the case. Notwithstanding what appears to us a mistake in the argument, it is a very remarkable work, the poetry is of a much higher class than has yet been devoted to the great end in view, and the illustrations are most admirable and numerous. It would not be a bad speculation for those who invest in good works, and look to the future for payment, to place a copy of this new and handsome edition of "Sir Jasper" on every drawing-room table in England.——A paper "On the Prevention of Railway Accidents," read on the 18th ult., in the Institution of Civil Engineers of Ireland, has been printed for the author, Mr. John Chaloner Smith, member, by John Falconer, Upper Sackville-street, Dublin. The reading of the paper is to be followed at the next meeting of the Institution, on the 22nd inst., by a discussion on it.——A volume of Scottish Ecclesiastical Antiquities is announced by Messrs. Virtue as just ready. Its title is "Scoti Monasticon," containing a history of all the cathedrals, monasteries, collegiate churches, and hospitals, with steel-plate engravings, and ground plans. There is no work of the kind, except the meagre compilation which its editor, Bishop Russell, said, 50 years ago, did not supply the gaps which ought to be filled up in Scottish literature. The author is Mr. Mackenzie Walcott. Sir Gilbert Scott will read a paper on Scottish Architecture in May, at the Congress in Edinburgh.

Miscellanea.

Society of Engineers.—At a meeting of the Society of Engineers on Monday last, a paper was read by Mr. George G. André, on the Ventilation of Coal-mines. In introducing the subject, the author alluded to the imperative necessity which exists for establishing the principles of mine-ventilation upon a definite and certain basis. A careful investigation of the matter had led him to conclude that one cubic foot of air per second for every 100 yards of surface was an adequate quantity in a dry mine, making but little gas of any kind. That allowed for the exhalation and formation of ·067 cubic foot of impurities, i.e., noxious gases, vapour of water and solid floating matter, per second. In other words, one cubic foot of air to every 100 yards of surface is equivalent to a film about ¾ in. thick spread over that surface, which film is changed every minute. And ·067 cubic foot of gases to the same extent of surface is equivalent to a film about 1-20 in. thick, formed every minute. This quantity is, under the favourable conditions assumed, only just sufficient, and is thus analogous to the breaking strain in materials. In every case, it will have to be multiplied by an appropriate factor of safety, the value of which must be determined by the conditions of the case: the value of this factor will vary from 2 in. non-fiery to 6 in. very fiery seams. This mode of treatment, which will be recognised as novel, brings the matter at once within the range of calculation, and furnishes a ready means of comparison.

The First School-Board School for Burton-on-Trent.—The foundation-stone of the first School-Board School for Burton has been laid. The school is to be a Gothic structure, and will be built to accommodate 800 children. It will be a red-brick building with stone dressings, 14 ft. in height from the eaves and 18 ft. in the centre. The entire cost, with fittings, is estimated at 5,000*l*. The site is in Victoria-road, and the local Board have arranged to erect a school for 150 children in Wellington-street. The area of the Victoria-street site is one acre, and the accommodation supplied is to be for 300 boys, 300 girls, and 200 infants. The design of the buildings is by Messrs. Giles & Brookhouse, and the contract has been let to Mr. Dusautoy.

Water Pipes in Frost.—The invention for the prevention of the bursting of water-pipes in frost, patented by Mr. J. A. Calantarients, M.B., of Scarborough, has now been used, it is said, with success, during the past winter in Scarborough. It is well known that when water freezes it expands, and that the force exerted is so enormous that no pipe can resist it. This invention endeavours to solve the problem by simply preventing any resistance at all, by securing in the inside of the pipe a space equal to the difference of volume between water and ice, so that when the water freezes and expands it occupies the space thus reserved for it, instead of exerting its force on the pipe and bursting it. This is practically carried out by passing through the water-pipes a small india-rubber tube, specially made for the purpose, and of such a diameter that the space inside it is a little more than equal to the increase in volume of the ice. This air-tube is always kept full of air, so that when the water freezes, it finds at every point the necessary space to occupy; for by compressing the air-tube it displaces the air and takes its place. When the ice melts, the air-tube again expands, becomes filled with air, and is ready to be acted on by another frost, and so on repeatedly for any number of times without requiring any attention.

The Cole Testimonial.—The committee are again bestirring themselves in this matter: they invite the co-operation of those who are interested in the arts and manufactures of this country, in collecting a tribute that shall be worthy of the great services of Mr. Cole, by whose ability and perseverance mainly, the art treasures at South Kensington have been brought together; and through whose active and efficient aid so many museums and schools of science and art have been established and organised throughout the kingdom, in which no fewer than 280,000 students are now receiving instruction in the principles and practice of science and ornamental art; to say nothing of other important public services. His Royal Highness the Prince of Wales and His Royal Highness the Duke of Edinburgh head the list of subscriptions, which is already a long one, but should be greatly increased. Mr. J. G. Crace, of 38, Wigmore-street, and Mr. Peter Graham, of 38, Oxford-street, will receive anything that may be sent to them in aid of the object in view.

Handyside's Smithies.—Among the objects in the present Exhibition at South Kensington, are the exhibits of Messrs. A. Handyside & Co., of smiths' hearths and portable forges, which form part of the International Show in Class IX. The arrangement of a number of hearths in a single shop occurs in one of the smithies at the Royal Small Arms Factory, Enfield. They are set around the walls, for the combined purposes of keeping a clear central space, leading the smoke-pipes into the wall-flues, and providing for the fixing of cranes to the wall for lifting heavy forgings. Annular hearths can thus, in addition, be usefully placed in the very centre of the shop, where long rods, crank shafts, &c., may be heated. The circular hearth employed at Enfield is curious. This is 2½ ft. in outside diameter, and is adapted for small forgings. A projection of the hearth-plate at each side of the "through and through" opening nearly doubles its breadth, giving a table 4 ft. 4 in. long, recessed in its centre for the fire, so that a forging of some length can be heated in the middle.

Production of Wood.—Mr. D. F. Mackensie, forester, Meldrum House, writes to an agricultural paper on the subject of manufacture of timber by landed proprietors, and says that there is no reason why the producer should not be the manufacturer, and save the large profits. The prices offered at wood sales depends, he says, upon whether the purchaser is to be content with 10 per cent. or 25 to 35 per cent. He states his own personal experience as regards profits to his employer, as follows:—In each case the wood was bought either by private tender or at a public auction. One wood, bought at 3,000*l*., gave 1,700*l*.; one at 2,750*l*. gave 2,100*l*.; one at 5,000*l*. gave 2,025*l*.; and a number of others gave 10 to 12 per cent. A number of minor purchases gave 130 per cent. clear profits, and in course of twelve years I have only known two cases of loss or net return. Not far from this, I am aware of one case where the timber merchants realised over 300 per cent., and seeing no competition for the lot he backed out with 10*l*. more when paying his account, as it seemed to be a bad bargain.

Sir John Lubbock's Bill for Protection of Ancient Monuments and Buildings.—This Bill, which has been thrown out on the second reading, was substantially the same as that which fell through last year. But to the official conservators Sir John now wished to add seven special Commissioners, named in the Bill, whose successors were to be appointed by the Crown. The powers of the Board would have been very great. The Commissioners might buy the monuments, enclose them, open a right of way to them, and prevent the owner from doing anything which the Commissioners might believe likely to bring about their destruction or injury. The class of monuments principally aimed at were those which suffer from carelessness, ignorance, and neglect, rather than wanton mischief. Such structures as cathedrals, churches, castles, abbeys, crosses, and ancient houses, were also to be protected.

Swanscombe Church.—The *Maidstone Journal* reports at length a lecture on Swanscombe Church by Mr. Henry Ross, F.S.A. At the close, the rector said he was most desirous to see the church thoroughly restored, but he could not admit that it rested entirely with him to do the remainder of the work. Dr. Lory Marsh said he had hoped to see the restoration of the chancel contemporary with the restoration of the nave. The rector, however, had stated that the task was too heavy for him; he (Dr. Marsh) therefore suggested that a movement should be initiated to do this, as the amount required was comparatively small; it would be a graceful compliment to the lecturer to start a subscription at once.

The Charles Knight Memorial.—Our readers know that it has been determined "that a memorial should be raised in honour of one whose life-long efforts in the creation of cheap, pure, and elevated literature have nobly contributed to the mental and moral welfare of his countrymen." We understand that upwards of 600*l*. have been received; but it is hoped that all classes will gladly co-operate to give a national character to the Memorial. Its form must, of course, depend upon the subscriptions, and it is intended to invite the opinion of subscribers upon the subject. Mr. George Routledge, of the Broadway, Ludgate-hill, E.C., acts as hon. secretary.

Discoveries at Keynsham.—Mr. J. T. Irvine writes:—"Further excavations in the tump or mound of rubbish which covers the remains of Keynsham Abbey have laid open the south wall of the choir (?). Part of the rich tile pavement of the chancel was found in its original position, and some very beautiful specimens of carved caps in Dundry and Lias stone have been brought to light. It is somewhat remarkable that a fragment of stone with Saxon interlacing strap ornament was discovered among the remains in the chancel. Mr. Cox has also laid open some very ancient foundations a short distance from the Abbey Church.

Enlargement of Yarmouth Gaol.—The Gaol Committee of the Great Yarmouth Town Council have recommended the enlargement of the gaol in accordance with plans and elevations which were laid upon the table. It is proposed to purchase property adjoining the old Toll-house, and erect a new building in the Elizabethan style, with a frontage to the street of 120 ft., an enlarged court-room, and with ante-rooms and offices more in accordance with modern requirements. The Council adopted the recommendation without discussion.

The Gas Supply of Birmingham.—At a recent meeting of the Birmingham Town Council, as already stated, it was resolved (with only one dissentient) to purchase the business of the two local gas companies for terms said to be advantageous. In accordance with previous custom, it was resolved to call a meeting of the ratepayers to sanction the purchase; and the meeting has been held, when the intended purchase was opposed, but the resolution was carried approving the scheme.

Fishing for Statues.—We understand that a company is now soliciting from the Turkish Government a firman for dredging the port of Rhodes for the bronze guns and culverins which are said to have been committed to the waters in the times of the struggle between the Knights of St. John and Solyman. The petitioners offer to give the Government one-third of all that they may recover. Besides the Colossus, there were at Rhodes 3,000 other statues, 100 of which were colossal.

Terrible Fire in America.—The New York papers of the 1st inst. report a fire as having taken place at Millerstown, Pennsylvania, which resulted in the destruction of no less than 71 buildings. One of the first edifices attacked by the flames was the Central Hotel, the escape of the inmates being cut off. Three of the guests and three servants were known to be burnt, and others are supposed to have perished. The fire originated with an explosion of gas.

Crystal Palace.—Miss Helen Ashton, a young lady likely to take a good position in her profession, has generously offered to perform the part of *Hero* in Shakspeare's Comedy of "Much Ado about Nothing," at the Crystal Palace on Wednesday next, the 22nd, for the benefit of Miss Caroline Parkes, a deserving actress, who is temporarily unable to pursue her professional vocation in consequence of an accident lately sustained.

The Wall in Richmond Cemetery.—The Vicar of Richmond has, upon the advice of the Bishop of Winchester, given way upon the question of the cemetery wall which has lately excited so much attention in that place. Meanwhile an Inspector from the Home Office declines to sanction the Nonconformist portion of the Cemetery as being too near the Workhouse.

Dinner to Mr. Holman Hunt by the Liverpool Art Club.—On the 13th inst. the members of the Liverpool Art Club entertained Mr. Holman Hunt, the painter, at dinner, at their Club-house, Sugnal-street. Mr. James L. Bowes, who occupied the chair, proposed the health of Mr. Hunt, which was drunk with acclamation.

Fire in Montreal.—On the 20th ult., the Queen's Hall, a new buiding in St. Catharine's-street, and the most commodious in the city, was totally destroyed. The building was owned by Sir Hugh Allen. The origin of the fire was from the overheating of a defective flue near the main furnace.

An Orphan Asylum for Newcastle.—The foundation-stone of an orphan asylum to be erected at Newcastle-upon-Tyne, at a cost of 10,000*l.*, by Mr. Hilton Phillipson, as a memorial of his late mother, has been laid. Sir W. G. Armstrong, C.B., took part in the ceremonial.

Stained Glass Windows.—The *John Bull* hears that Mr. Fox, the new vicar of Christ Church, Westminster, has, from his dislike to stained-glass windows, refused to allow one to be placed in his church in memory of his revered predecessor, the Rev. Cyril Page.

Conversazione.—The president of the Institution of Civil Engineers (Mr. T. E. Harrison) will hold his *conversazione* in the West Galleries of the International Exhibition, on Tuesday, May 19th next.

The Channel Passage.—The suggestion we printed recently (p. 283, *ante*) should be attributed to Mr. R. L. Roumieu, architect, not M. Roumieu.

The Margate Drainage. — The Town Council have resolved to submit the drainage plans to public notice by exhibiting them in the Oriental Hall for a fortnight.

Royal Institute of Architects. — In our notice of the last meeting we omitted to mention that Mr. Arthur Cates was then elected as Fellow. We very gladly supply the omission.

New Barracks at Upnor.—The contractors are Messrs. Ball & Gammon, of Lambeth, not Rochester, as stated, p. 317.

TENDERS

For alterations and additions to the Boot Tavern, Cromer-street, Gray's-inn-road. Mr. E. L. Paraire, architect:—

Kelly & Bros.	£963	0	0
Sawyer	953	0	0
Hyde	920	0	0
Deacon	879	0	0
Faulkner	875	0	0
Canning & Miller	870	0	0
Sharpley	868	0	0
Chapman	824	0	0

For the erection of a house and shop, Northam-road, Southampton, adjoining the St. Mary's-street Railway-bridge. Mr. W. H. Mitchell, architect. Quantities supplied:—

Sanders	£992	0	0
Dyer	936	0	0
Chapman	935	12	0
Brinton & Bone	920	0	0
Stevens (accepted)	860	0	0

For alterations to the Greyhound public-house, Old-street, St. Luke's, for Mr. Batchelor. Mr. Edward Brown, architect:—

Jago	£650	0	0
R. Marr (accepted)	625	0	0
Steed	590	0	0

For alterations to the White Hart public-house, Walworth-road, for Mr. Lipson. Mr. Edward Brown, architect:—

R. Marr	£627	0	0
J. Palmer (accepted)	467	0	0
Brocks	372	0	0

For the erection of a dwelling-house, Bath-road, Swindon, Wilts. Mr. W. H. Read, architect:—

Phillips	£1,700	0	0
Wiltshire	1,648	0	0
Barrett	1,573	18	0
Forshaw	1,330	0	0

For the erection of Vagrant Wards at Stratton St. Margaret, for the Highworth and Swindon Union. Mr. W. H. Read, architect:—

Wiltshire	£298	0	0
Barrett	288	0	0
Thomas	279	16	0
Phillips (accepted)	278	0	0

For the erection of houses in Arthur-street, Newry, County Down, Ireland, for the Right Honourable the Marquis of Downshire. Mr. Wm. James Watson, architect:—

Wheelan	£1,290	0	0
Mahood (accepted)	1,250	0	0

For the erection of two cottages in Bridge-street, Newry, County Armagh, for Mr. James Fennell. Mr. Wm. James Watson, architect:

Mahood	£272	0	0
Lavery	262	0	0
McShane	260	0	0
Wheelan (accepted)	260	0	0

For the erection of houses in Barrack-street, Newry, County Armagh, for the Right Hon. Viscount Newry. Mr. Wm. James Watson, architect:—

Mahood	£1,110	0	0
Wheelan (accepted)	1,098	0	0

For warehouse, 8, Salisbury-court, Fleet-street, for Mr. T. N. Debenham. Mr. Sextus Dyball architect:—

Kelly Bros.	£1,583	0	0
Killby	1,568	0	0
Faulkner	1,545	0	0
Browne & Robinson	1,532	0	0
Mortar	1,489	0	0
Rudkin	1,461	0	0
King & Son	1,388	0	0
Newman & Mann	1,305	0	0
Taylor	1,295	0	0
W. & F. Croaker	1,249	0	0

For new farm-house, Studdridge, Oxon. Mr. Arthur Vernon, architect:—

Reavell	£975	0	0
Snell	900	0	0
Syred	885	0	0
Hunt	816	0	0
Spicer (accepted)	780	0	0

For the erection of warehouse in Camomile-street, City, for Mr. H. Lange. Mr. Chancellor, architect. Quantities prepared by Messrs. Curtis & Sons:—

Sharpington & Cole	£3,997	0	0
Killby	3,990	0	0
Brown & Robinson	3,949	0	0
Merritt & Ashby	3,735	0	0
Brown	3,700	0	0
Ryder & Son	3,668	0	0
King & Son (accepted)	3,550	0	0

For Congregational Church at Caterham, for the Building Committee. Mr. John Sulman, jun., architect. Quantitities supplied by the architect:—

		Extra Cost of Wainscot in lieu of Deal for Seating.
Newman & Mann	£5,615	£200
Macey	5,377	360
Hill, Higgs, & Hill	5,089	260
Dore Bros.	5,075	200
L. H. & R. Roberts	4,748	200

For rebuilding No. 61, and reconstructing No. 60, Old Broad-street, for Messrs. Samuel Montague & Co. Mr. N. S. Joseph, architect. Quantities supplied by Mr. S. B. Wilson:—

Hearne	£4,506	0	0
Trollope & Sons	4,483	0	0
Brass	4,394	0	0
Merritt & Ashby	4,290	0	0
Perry & Co.	4,151	0	0
Langmead & Way	4,096	0	0
Scrivener & White	4,075	0	0
Conder	4,075	0	0
Brown & Robinson	4,042	0	0
Newman & Mann	4,036	0	0
Killby (accepted)	3,973	0	0

For alterations and additions at the Bull's Head public-house, No. 29, Cross-street, Hatton-garden. Mr. E. A. Burrell, architect. Quantities not supplied:—

Thomas	£750	0	0
Longmire & Burge	505	0	0
Newman & Mann	505	0	0
Wagstaff (accepted)	494	0	0

For proposed farm, school, chapel, and new residences, Boys' Country Home, Bisley, Surrey. Mr. T. Heygate Vernon, architect. Quantities supplied by Messrs. Mann & Saunders:—

	Farm, School, Chapel.	New Residences.
Carter & Son	£1,665	£1,021
Patman & Fotheringham	1,580	937
Brass	1,495	1,012
Newman & Mann	1,520	956
Stimpson & Co.	1,543	910
Watson { separate amounts not given } Adamson	£2,895 / 2,724	

For alterations to the Red Lion public-house, Lower-road, Deptford. Mr. H. J. Newton, architect. Quantities by Mr. H. W. Budd:—

Godden	£280	0	0
Hockley	275	0	0
Taylor	267	0	0
Devens	265	0	0
Brindle	245	15	0
Shurmur	243	0	0
Boden (accepted)	223	0	0

For repairs, alterations, and additions to No. 27, Carey-street, Lincoln's-inn-fields, for Messrs. Matthew Bros. Mr. Alfred Cross, architect. Quantities supplied by Mr. John Glenn:—

Thompson	£1,310	0	0
Lawn	1,249	0	0
Howard	1,210	0	0
Patman & Fotheringham	1,077	0	0
Pritchard	1,025	0	0
Newman & Mann	991	0	0
Richards	961	0	0
Wilson Bros.	920	0	0
Bangs & Co.	890	0	0

For alterations and repairs for Mr. Laings, Croydon. Mr. Robins, architect:—

McLachlan	£434	0	0
Green & King	355	0	0
Chandler	350	0	0
G. & S. Smith (accepted)	345	0	0

For alterations to the Rose and Crown tavern, Tottenham-court-road. Messrs. Tolley & Dale, architects:—

Newman & Mann	£426	0	0
Sabey & Son	343	0	0
Thomas	270	0	0

For Presbyterian Church, New Barnet. Mr. G. F. Stalker, architect:—

		Add for Transepts.
Hill, Higgs, & Hill	£2,443	£760
Pattinson	2,079	713
Tibbett	2,050	710
Niblett & Son	2,080	605
Staines & Son	2,044	622
Sabey & Son	2,029	549
Gilmour	1,885	573
Scrivener	1,620	480

For the erection of factory and chimney-shaft, at Lostiford Mills, Wonersh, Surrey. Mr. H. Peak, architect:—

Mason	£1,748	0	0
Moon	1,592	0	0
Mitchell	1,551	0	0
Garnett	1,542	0	0
Pearce & Clark	1,521	10	0
Goddard & Son (accepted)	1,474	0	0

For alterations and shop fronts to Nos. 93 and 94, High-street, Guildford. Mr Henry Peak architect:—

Pollard & Son	£283	10	0
Mason	259	0	0
Strudwick	254	0	0
West	222	0	0
Goff (accepted)	215	0	0

For additions and alterations to the Horse and Groom, Guildford. Mr. Henry Peak architect:—

West	£414	0	0
Mason	390	0	0
Pollard & Son (accepted)	364	0	0

For the erection, including fixtures and fittings of the central portion, of the Children's Home, at Norbiton, Surrey, for the Metropolitan Convalescent Institution. Mr. H. Saxon Snell, architect. Quantities supplied by the architect, and Messrs. Lansdowne & Pollard:—

Bulmer	£5,380	0	0
Manley & Rogers	5,264	0	0
Todd & Saunders	5,065	0	0
Simpson	4,994	0	0
Wall Bros. (accepted)	4,900	0	0

For house at Kingston, Surrey, for Dr. Shea. Messrs. Henry Jarvis & Son, architects:—

Lane	£1,225	0	0
Marsland & Sons	1,234	0	0
Todd & Saunders	847	0	0
Wright	815	0	0

For erection of church of "Our Lady of Consolation," West Grinstead, Sussex. Mr. J. Crawley, architect:—

Bushby	£9,315	0	0
Patman & Fotheringham	8,295	0	0
Penhill	8,165	0	0
Killby	7,999	0	0
Cowland	7,940	0	0
Stimpson & Co.	7,165	0	0
Longmire & Burge	6,774	0	0

For pulling down five warehouses on the Charterhouse Estate, and erecting three new warehouses, for Messrs. Tubbs & Lewis. Mr. John Collier, architect:—

Niblett & Son	£5,200	0	0
Crockett	4,892	0	0
Staines & Son	4,434	0	0
Croaker	4,400	0	0
Lawrence	4,315	0	0
Mark	4,265	0	0
Crabb	4,160	0	0
Moreland & Nixon	3,995	0	0
Elkington (accepted)	3,994	0	0

TO CORRESPONDENTS.

H. P.—W. C. C.—C. L. E.—A. J. H.—M. E. C. W.—F. B. E.—L. A.—B. & G.—Dr. M.—W. W. & Son—Mr. C.—J. J. L.—E. B.—W. J. W. C. H.—J. W. R.—W. H. R.—H. R. G.—J. W.—G. J.—C. C. H.—K. & Son—C.—C. P. H.—W. J. S.—E. A. H.—O. S.—H. H.—S. A. W.—J. L.—S. & Son.—G. B.—M. E. I. (for making drawings and specification complete, ready for estimate, the charge allowed by Institute scale is 2½ per cent. If tenders be procured ½ per cent. more.)—E. B. (we are forced to decline. We could not print testimonials.)—H. P. (next week).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.